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Oil, Paint and Drug Reporter

VOLUME 89. No. 8. MONDAY, FEBRUARY 14, 1916. 100 William Street, New York

THE 1915 ANNUAL REVIEW AND STATISTICAL NUMBER

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OUR ANNUAL REVIEW EXTRA EDITION.

For many years it has been the custom of the Oil, Paint and Drug Reporter to publish, in a separate issue, during the early part of the year an annual review of the trades it represents for the previous calendar year. Owing to the delay in obtaining certain statistical information, which was not available until last Thursday, we were prevented from completing our edition until now and we are therefore presenting this issue to our readers as an extra edition in order that they may not be kept waiting another week for the record of the important developments in our trades for the year 1915.

Our treatment of the market and trade developments is based on a close study of the essential conditions and influences and the results are presented in a form to afford a comprehensive and satisfying summary. We are gratified to be able to include in this edition a number of the more important foreign market reviews, which we are confident will command recognition by reason of the unusual conditions they portray and the difficulties under which they have been prepared. For those of our customary foreign reviews which we are not able to present at this time we ask the indulgence of our readers who will readily appreciate the occasion for their omission. Where their omission has been due to delay in their dispatch or arrival we shall publish them in our regular editions as soon after their receipt as possible.

The year 1915 stands as the most eventful period our trades have ever experienced, all being more or less closely related to the influences and results of the war. The stirring developments which characterized the earlier months of the war have in some cases been equalled or surpassed during the past year, but, on the whole, our trade interests have been able to adapt their policies more within the rule of reasonable regulation and safeguard.

There have been new conditions and complications with the advance of the year to interpose additional problems of adjustment, but the settlement has been generally worked out without serious disturbance of the balance our trades have been able to maintain so creditably against so many perplexing influences. Probably the most trying instances have been experienced in the rampant speculative tactics of second hands in commodities reflecting the keenest effects of the war. These practices have been largely encouraged by the diversion of supplies from contract purchasers hoping to turn to account the wide margins afforded by the open markets over the original terms. It is gratifying that these wildcat transactions have been well checked by the absorption of the resale stocks and the more drastic measures of first hands to guard against their recurrence.

The rule of belligerent governments in imposing greater restrictions upon supplies within their control for possible war service or to guard their outlet against the enemy's consumption has resulted in a tightening of stocks of a number of important articles in our field, but the extension of export embargoes and the crippling of many foreign industrial and commercial activities have been the means of creating new opportunities for our products and wares in the markets abroad, with fair chances of establishing them on an enduring basis. We have been brought more keenly to the realization of developing to greater self-reliance industries well within reasonable accomplishment, now that the war has been the means of strengthening the assurance in our resources and our ability to turn them to best account.

We have entered upon another year, with a stronger sense of security against whatever forces of economic unrest may be in store during its course and with increased confidence that having endured the hardest troubles of the war our trades are now in the soundest position to apply their experience and new opportunities to all the greater advantage and credit.

FROM A NATIONAL STANDPOINT.

It is reasonably safe to say that in its national aspects the Federal Government, through its activities in legislative affairs, orders of executive departments, decisions by the courts and regulations made by various Federal officials, has touched practically every line of the Reporter's trade during the past year. Nearly all lines of industry have been directly or indirectly affected by the European war and its influence upon international commerce and shipping and all avenues of trade have been noticeable, also, through actions of the Federal Government in efforts to relieve conditions in industry that have been made burdensome on account of that war.

It is impossible to consider the operations in the industry in this country during the past year without giving close attention to the effect upon the commerce of the United States, of embargoes enforced by the warring nations which have continued seriously to affect the dyestuffs and fertilizer industry of the United States and of the related trades. Interference in our shipping and the enlargement of the arena of war by the entry of Italy into the combat and the extension of lines of war into the Balkan country, have had their influence in demoralizing trade relations between the United States and increased areas of the Old World.

It is important in reviewing the situation during the past year to give much consideration to the effect upon the interests of the United States by the continued shortage of dyestuffs and fertilizer materials. In some respects the diminished sources of these commodities, formerly largely imported, and the vigorous efforts that have been made and are being made to develop a domestic industry, constitutes one of the interesting features of the developments in industry during the past year.

The tariff of the United States entered only to limited degree into the trade relations of the country, and although there was much complaint of the inequalities of duties under the existing tariff law, the diminished volume of trade from the leading commercial nations of Europe doubtless had much to do toward ameliorating conditions which might have been serious to domestic industry as a result of increased foreign competition.

With respect to the various trades in their domestic aspects, great interest has been displayed throughout the year in the petroleum trade, and the prospects for increased production of gasoline and the aromatic carbons through what is known as the Rittman process, a discovery of one of the scientists in the United States Bureau of Mines. The varying conditions in the petroleum trade, not only with respect to production, but of transportation and the marketing of the by-products has engaged the attention of the government and awakened a continued interest among all branches of industry related to that trade.

A year's operations of the Harrison anti-narcotic law, an act which became effective early in the year, has engaged the attention of the medical fraternity and the manufacturers and dealers in opium, cocaine and their salts and derivatives, and has been one of the most important fields for the operations of one branch of the government in carrying on the work of enforcing this new law, which is intended to be so helpful in curbing sales of habit-forming drugs to addicts in the country. Although in operation but a few months, this law already has been the subject of numerous departmental and court decisions, and these decisions have been in turn considered by organizations representative of the drug and medical fraternities.

Other activities of government officials in Congress and the executive departments, in the various avenues which the government operates through law upon domestic industry, have had to do with the enforcement of the emergency revenue law and new features of the food and drugs act. There developed in the latter part of the year interesting problems connected with the continuation of the emergency revenue law, and possibilities of a wider scope of taxation under plans approved by President Wilson's administration. These new fields of taxation, if entered upon by Congress, promise to affect in a serious way the petroleum industry and other important trades of the country.

The influence of the government were also felt in a helpful way in the naval stores trade of the country by promoting the establishment, in a commercial way, of standard types for determining rosin grades.

Throughout the year considerable attention was given by governmental bodies like the Interstate Commerce Commission, the Federal Trades Commission and committees of Congress, to trade and transportation conditions affecting the petroleum industry and many other lines of trade and transportation.

A merely cursory review of these many problems touched by governmental activities will serve to show the importance of the relations of the Federal Government, in its various workings, to the numerous lines of industry throughout the country.

The War and Its Influences.

Throughout the entire year the influences of the war continued to be felt upon all branches of the trades. Probably no other feature of general conditions operated to so great a detriment to many lines of industry as has the war, and at the same time in certain lines of business connected with the furnishing of war supplies naturally there was a stimulus to trade.

In the very beginning of the year the warring nations renewed their interference with neutral trade by tightening up every line which would directly or indirectly affect the conditions of war. The embargo lists which were announced in the latter part of 1914, or immediately after the beginning of th war, were greatly enlarged by subsequent orders issued by Great Britain, France and Russia, and in many respects additions to the contraband list directly interfered with the industries throughout the various trades. An illustration of this is shown by the first elaborate addition to the contraband list announced at the beginning of the year by Great Britain. As there has been no material reduction in this list throughout the year, in fact, additions to rather than subtractions, it is well to bear in mind how complete were the additions to the absolute contraband list as announced by Great Britain at the beginning of the year. This list included the following:—

Ingredients of explosives, including nitric acid, glycerine, acetons, calcium acetate and all other metallic acetates; sulphur, potassium nitrate, fractions of distillation products of coal-tar between benzoi and cresol, including aniline, methylaniline, dimethylaniline, ammonium perchlorate, sodium perchlorate, sodium chlorate, barium chlorate, calcium nitrate, mercury.

Resinous products, camphor and turpentine (oil and spirit).

Ferro alloys, including ferro tungsten, ferro molybdenum, ferro manganese, ferro vanadium, ferro chrome.

Tungsten, molybdenum, vanadium, selenium, cobalt, manganese, wolframite, scheelite, molybdenite, manganese ore, zinc ore, lead or bauxite.

Alumins and salts or aluminum.

Antimony, together with sulphides and oxides of antimony.

Copper, part wrought, and copper wire.

Submarine sound signaling apparatus.

Tires for motor vehicles and for cycles, together with articles or materials especially adapted for use in manufacture or repair of tires.

Rubber, including raw waste and reclaimed rubber, and goods made wholly of rubber.

In connection with the announcement of the foregoing additions to the list of absolute contraband goods, every indication was given by the British Government of a settled purpose to cut off, as far as possible, Germany and Austria from all contact with the outside world, particularly with respect to those things which the enemies of Great Britain might be able to use in prosecuting their side of the war. This policy on the part of Great Britain included special activity in seizing, examining and often detaining, and in a few instances confiscating ships in the foreign carrying trade destined to neutral as well as enemy ports, containing either contraband goods or articles which could be utilized in the prosecution of the war. Naturally this policy caused great annoyance, expense and embarrassment to shippers of the various lines of commodities, particularly those which were destined for neutral countries, but under conditions that were suspected by Great Britain of being the preliminary steps toward re-exportation from such countries to Germany and Austria. Immediately there followed announcements on behalf of the Governments of the Netherlands and Scandinavian countries, and Italy in the South, declaring embargoes against the re-exportation of such articles as should enter their ports, mainly contraband goods and especially foodstuffs. At different times there were evidences of greater liberality on the part of Great Britain, France and Russia in dealing with the trade of neutrals, but invariably this slackening of the tightened lines was traceable to a desire to facilitate the entry of necessary commodities into their own ports.

In the first month of the year elaborate statements were issued by the British Foreign Office calculated to convey information to the world as to the necessity for the closest possible scrutiny of the over-ocean trade in order to prevent the Central Powers of Europe engaged in the war obtaining any assistance through such neutral commerce. In the beginning of these controversies, attention was chiefly given by Great Britain to policing the neutral trade in cotton and copper. As a natural result this policy operated greatly to interfere with American exports of these commodities, and depression of prices and consequent hardships to the cotton and copper industries followed. This resulted in the exchange of many notes in correspondence between this country and Great Britain with respect to the policy of the latter country in dealing with cotton and copper, and these notes were given greater intensity by the agitation in Congress over the placing of these articles on the list of absolute contraband, and efforts to prevent trading in them by neutrals in proximity to the theater of war. The attitude of Great Britain on this subject was set forth in an elaborate statement by Sir Edward Grey, at the head of the British Foreign Office, the essential parts of which are embodied in the following:—

We are confronted with the growing danger that neutral countries contiguous to the enemy will become on a scale hitherto unprecedented a base of supplies for the armed forces of our enemies and for materials for manufacturing armament. The trade figures of imports show how strong this tendency is, but we have no complaint to make of the attitude of the governments of those countries, which so far as we are aware have not departed from proper rules of neutrality. We endeavor in the interest of our own national safety to prevent this danger by intercepting goods really destined for the enemy, without interfering with those which are for bona fide neutral.

But as time passed this apparently liberal policy on the part of Great Britain in dealing with the trade of neutrals to neutral territory was abandoned, and every effort was made by Great Britain to prevent the trade of neutrals in commodities which might reach enemy country and be of service in the prosecution of hostilities.

Throughout the year there has been constant complications resulting from the detention or seizure of vessels

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bearing cotton, copper, mineral oils and naval stores. While the greatest possible care has been exercised by the American shippers in efforts to meet the requirements of war conditions, and a considerable part of the operations have been conducted under the surveillance of the British authorities stationed in the United States, and co-operation on the part of the State and Commerce Departments of this country, there has been a constant interference with practically all lines of trade between the United States and the neutral countries.

In efforts to protect her own interests Great Britain placed embargoes on exports of practically everything produced within British territory that might ultimately reach enemy country. This policy worked particular hardship upon the United States because of the cessation of exports of dyestuffs from Germany to this country, and the British policy prevented the obtaining of any considerable quantities of dyestuffs through British sources. Great Britain entered upon a plan of government aid to the dyestuffs industry of that nation and opened negotiations with dye producers in Switzerland to aid in furnishing dyes to British textile workers. This embargo policy on the part of Great Britain operated not only to interfere with those lines of commodities which might be held to afford assistance to an enemy, but, because of the desire on the part of Great Britain to protect the interests of her own people the embargoes were directed against all lines of commodities for which there was a heavy demand by the British people. The latest manifestation of this later policy was disclosed in the embargo placed by Great Britain upon exports of logwood out of Jamaica and British Honduras. As a result of protests made by the State Department of the United States some relaxation was secured and limited quantities of logwood were authorized to be sent out of Jamaica, conditioned upon agreements on the part of American buyers of the commodity that they would be as liberal as possible in supplying the needs of British buyers of logwood extract, particularly such buyers in Canada who had their supplies curtailed through the feeling of doubt on the part of American manufacturers of the extract that the domestic supply would be adequate to their needs.

While there has been much ground for complaint by American and other neutral ships carrying commodities sent from this country to neutral countries, there have been given from time to time evidences of a purpose on the part of the allies in the war to give as much relief to American shipping as they regarded as consistent with their particular domestic interests. In connection with this policy Great Britain established in the embassy in Washington a Commercial Secretary, Sir Richard Crawford, who has given much time and attention in efforts so to adjust conditions in connection with the over-ocean trade as to give the greatest possible relief to American trade consistent with the necessities of Great Britain in prosecuting her part of the war. It is claimed that whatever concessions have been made in connection with allowance of dyestuffs to reach the markets of the United States, have been due to the active efforts of Sir Richard Crawford in endeavoring to meet the requirements of American manufacturers.

Very early, however, in the controversy over the movement of these commodities, embarrassments arose because of the differences existing in the trade policies of these warring nations. Wherever the intervention of Great Britain in the over-ocean trade operated to isolate Germany and interfered with the ability of Germany to obtain supplies from the outside world, the German Government sought to meet this situation by declining to allow a movement out of her ports, even in neutral trade, of such commodities as dyestuffs and potash unless in exchange for these articles the Government of the United States would facilitate the exchange of raw cotton and copper therefor. So it has been that throughout the year a contest has ensued in the diplomatic correspondence of this Government to obtain concessions from Great Britain in allowing articles to move toward the ports of the United States, and then to be confronted with refusal of the German Government to allow the necessary articles to move, except in exchange for commodities which the German Government requires in the prosecution of the war on her part. This trade interference has operated particularly in the matter of dyestuffs and potash and the year closed with little, if any, improvement with respect to these conditions.

Another difficulty which confronted the trade of the United States early in the year was the entry of Italy into the war and the transfer of active hostilities from the interior of Europe to the Balkan States of the South. The entry of Italy into the war naturally closed, to some extent at least, the Northern Mediterranean ports from the entry of neutral commerce, except under such surveillance as the warring nations were disposed to give to it. Italy consumed large quantities of American products, notably copper and naval stores, and perhaps in expectation of a possible entry into the war she was a large buyer of these commodities in the months immediately following the outbreak of the war between her present allies and Germany and Austria. Within the past few weeks much of the trouble that has beset the trade of the United States has grown out of seizures of ships in the neutral trade in the waters of the Mediterranean. While conditions have been no more tolerable in the waters surrounding the Northern theater of war, American shippers in collaboration with Great Britain and France, and also with Russia have been able to make some progress in protecting and increasing trade with the neutral countries and with those warring countries that control the seas and are able to dictate policies in the over-ocean carrying trade. Russia, for example, has made a number of concessions in the exportation of commodities desired by American buyers and to such ports as were open she has encouraged importations of commodities from the neutral countries.

Potash and Dyestuffs.

Two interests in the United States have been so directly affected by the prevailing war in Europe and along practically the same lines that the consideration of developments with respect to them may be placed practically in parallel columns. The total cessation of the shipments of potash from Germany to the United States as an incident to the war has been seriously felt throughout the fertilizer industry of the country, and through that industry upon the agricultural interests in all sections where fertilizer is generally used and particularly in the cotton belt of the South. Indeed, among students of the situation the assertion is made that the shortage in fertilizer material is really a more serious injury to the people of the United States than is the shortage of dyestuffs.

The almost total stoppage of shipments of dyestuffs from the great German factories, which resulted with the opening of the war a year ago, was greatly felt throughout the textile and other industries in this country in which dyestuffs are consumed in large quantities.

With respect to potash, immediately upon the announcement that it would be practically impossible to obtain potash from the markets of Germany, efforts were made through diplomatic channels by the State Department to ascertain the causes. First, it was disclosed that the policy pursued by Great Britain in her war upon Germany of closing the ports of Germany not only to shipments into German markets, but also exports out of Germany, would prevent the movement of potash. Later, it was disclosed that possibly arrangements might be made for buyers in the United States to obtain reasonable quantities not only of potash, but of dyestuffs where it could be shown that there was actual necessity for these articles, and that contracts had been entered into for them or payments made therefor previous to March of the present year when the tightening of the lines in the policy of Great Britain towards German commerce was forced by the orders in council. Thereupon it developed with respect to potash that two considerations had moved the Government of Germany to prevent, as far as possible, potash moving out of German ports to the United States. One was based upon rumor only, to the effect that the opinion prevailed among German statesmen that by withholding fertilizer material from the fields of the United States, diminished crops would result and the allied powers at war with Germany would be less able to obtain food supplies from the markets of this country. Another more forcible reason given by the German Government, through the United States Ambassador to Germany, was that considerable quantities of potash shipped to the United States had been utilized in the manufacture of explosives which were exported to the allied powers for use in their military campaigns against Germany and Austria.

A variety of suggestions were made through diplomatic channels for meeting the situation as to both potash and dyestuffs. Arrangements were perfected whereby any of these commodities which should be moved out of German ports or from German ports through the ports of Holland, might be consigned in care of the Secretary of Commerce of the United States in order to give assurance that in the distribution of these commodities throughout the United States, no part of them should be exported to foreign countries. Suggestions were also made that plans might be adopted for so denaturing potash as to render it useless in the production of explosives and yet not rob it of its vital features as an ingredient of fertilizers.

As a result of all these negotiations there have been, from time to time, some movements of dyestuffs and a very little of potash, mostly, it is understood, through neutral ports adjacent to Germany, and the United States has obtained some share of these commodities. The supplies of potash, however, have been very meager, compared with the supplies of dyestuffs which from time to time have reached the markets of this country. It has been possible, also, for buyers in the United States to obtain some supplies of dye materials through Swiss manufacturers in exchange for supplies of intermediates shipped from the United States to the Swiss manufacturers. Also, there were considerable shipments of logwood and dyestuffs from colonial possessions of several of the warring nations and this progressed until late in the year when, as a result of complaints made by British buyers in Canada and in the mother country, that they had been denied supplies of logwood extract for which they had contracted with American manufacturers, induced the British Government to place an embargo on shipments of logwood out of some of her colonial possessions. Immediately upon this matter being taken up by the State Department, however, arrangements were perfected whereby limited quantities of logwood were to be allowed to move out of Jamaica.

With this situation confronting several important industries throughout the United States, naturally there was great activity in all departments of the government to assist in meeting it, and if possible to develop a domestic production of fertilizer material and dyestuffs within the United States. Voluminous reports have been made by officials of the Departments of Agriculture, Interior and Commerce, having a bearing upon this question, and particularly with respect to the possibilities of such domestic production.

Immediately upon the facts being disclosed as to possibilities for a domestic production of these commodities, the question was raised by those who contemplated investing capital in these industries as to what assurances were to be given that upon the close of the war the great producing agencies of Germany, not only in potash but in dyestuffs, would be prevented from again taking possession of the markets of the United States by underselling at low prices. This problem immediately became one of governmental consideration, and Federal authorities, including the Department of Justice and the Commerce Department, as well as the Federal Trades Commission, took up the question of providing some method of preventing such unloading of these commodities upon the markets of the United States to the injury of American investors who may at the time the war ends have developed some measure of production along the lines in question. It was early disclosed that the present administration did not take kindly to the idea of disturbing the existing tariff law by making amendments thereto intended to increase duties upon these articles as a measure of protection to the domestic industries, but would prefer, rather, to adopt what was called a measure to enforce "fair trading" by some such policy as has prevailed in other countries, notably Canada and Austria, and to some extent in Great Britain, in what is described as "anti-dumping laws." These laws, as they have been considered by the Federal officials and are expected to be presented for the consideration of Congress, are calculated to prevent underselling in the markets of the United States at prices far below what are charged in the markets of the country of production.

Very soon after the stringent situation was presented with respect to potash and dyestuffs, active efforts were made through the executive departments of the government to ascertain what could be accomplished in the way of domestic supplies of these commodities. The Interior, Agricultural and Commerce Department officials immediately called for reports of bureau officers directly in charge of fields for fertilizer materials and prospective dyestuffs production. With respect to the latter, a number of what has been described as "rosy reports" have been issued, probably as a result of enthusiastic desire to give encouragement to domestic industries. But it has been demonstrated through many channels that considerable progress was made during the year in the production of finished dyes from the increasing quantities of intermediates supplied from many sources throughout the country.

With respect to potash, reports have been made through the Agricultural and Commerce Departments and by the United States Geological Survey, that adequate quantities of potash salts may be obtained, with proper development of the industry and investment of capital, from the kelp beds on the Pacific Coast; from the deposits of alunite and some quantities, perhaps, from the Searles Lake saline deposits in Southern California. With respect to the potash possibilities from the kelp fields, one report made under government authority, among other things said:—

Wet kelp contains on an average 4 per cent. of potassium chlorid. It can advantageously be used as a fertilizer, and is so used to an increasing extent along the Pacific littoral.

Air-dried kelp contains about 15 per cent. and 1.5 per cent. of phosphoric acid. It is of potash (K_2O), 2 per cent. of nitrogen.

Air-dried kelp contains about 15 per cent. of potash (K_2O), 2 per cent. of nitrogen and 1.15 per cent. of phosphoric acid. It is readily pulverized and is of equal value as a fertilizer with equivalent amounts of potash in the customary form of chlorid and sulphate. Taking all factors into consideration—cost of production, cost of handling and physical properties—dried powdered kelp seems to be the form in which a substantial commercial demand can be most quickly secured. It will rapidly appeal to the manufacturer of mixed fertilizers.

Similar reports were made through the Bureau of Soils and the United States Geological Survey, and from the latter bureau the following statement was made with respect to the potash deposits of Southern California:—

As a summary it is probably safe to say that commercially valuable concentrations of potash are not to be looked for in the desert-basin deposits generally. In the first place, salines deposited by shallow intermittent lakes are not only so mixed with muds as to render their profitable recovery very doubtful, but such deposits are unlikely to retain on a large scale any considerable percentages of potassium in the soluble form. Only in the basins where large and deep saline lakes have existed and dried up under favorable conditions are massive deposits of salines free from mixture with mud to be looked for. Such conditions are rather exceptional. Probably few desert saline lakes have in fact dried up so free from clay or other sediments that their water-soluble salts have retained the major portion of the potash originally present in the lake water.

The confident hope is still held out that these exceptional conditions exist in some places and that by good fortune or otherwise they may be revealed. It seems that in Searles Lake one such exceptional place has been found, and it is possible that there may be even larger and more valuable deposits still to be discovered.

On the subject of dyestuffs a great variety of statements have been made from time to time. Through active efforts on the part of importers and managers of textile industries some German dyestuffs have been secured, and at all times there appears to be an active interest on the part of concerns in the country with facilities or prospective facilities for manufacturing dyes to enter upon that industry. Early in the year the Senate of the United States passed a resolution calling upon Secretary Redfield, of the Commerce Department, to make an investigation and report upon the general situation as to dyestuffs, and particularly with respect to prospective manufacturing in the United States. After calling attention to the situation that was forced upon this country by the European war and the large number of consumers of dyestuffs in this country who had been crippled in various ways as a result of the scarcity of dyestuffs, and the increased prices of such dyes and materials as could be obtained, Secretary Redfield, among other things, made the following references to the domestic industry and the proper course to be pursued in safeguarding such industry after it has been developed:—

The four American establishments making artificial dyestuffs have done their best to meet the emergency by enlarging the ordinary output. They have been crippled by the difficulties or impossibility of securing half-manufactured materials from abroad or crude materials at home. Some large consumers of dyestuffs have erected emergency plants and make the colors they absolutely need, at considerable cost, it is true.

In all this annoyance, loss and uncertainty the question has become acute. Why do we not have an American coal-tar chemical industry, capable of meeting the nation's demands, self-contained and independent of foreign control, utilizing our native raw material?

A careful analysis of the situation shows that not only is the American supply and the limited American production of coal-tar dyestuffs completely dominated by the German industry, but that this is the case throughout the world. Even countries such as Great Britain and France, with ample supplies of crude materials and highly developed industrial power, are in the same condition as the United States, normally dependent for indispensable color materials required by their leading industrial branches, and undergoing at present much more serious difficulties than our manufacturers, as they are completely cut off from German supplies.

The present crisis has evoked deep interest on the part of all concerned, tar distillers, manufacturers of chemicals, manufacturers of dyestuffs, the many users of the same, and American economists in general, as to how the problem can be settled. There is no question but that our coke interests are ready to multiply their recovery plants for the production of benzol and tar if a permanent market is assured. There is no question of the readiness of tar distillers to enlarge their plants for the production of an amply supply of the needed crudes if a continued demand is certain. American chemical works and American manufacturers of dyestuffs are ready to embark capital and experience in building up a distinctly American coal-tar chemical industry, using entirely American crudes and intermediates, provided there is adequate legislative prohibition against both "dumping" in our markets or unfair restraint of American trade by the arbitrary action of foreign monopoly permitted by foreign law, and not as yet forbidden by our own. Foreign makers assert their ability to make at once over 90 per cent. of the dyes now consumed in the United States, which are now patent free, and state that the remaining tenth will soon be freed from patent restriction.

There seems to be a consensus of opinion that any rapid development and evolution of the dyestuff branch, on a scale commensurate with the nation's needs, present and prospective, can be assured only on the basis of an effective law preventing that action toward control of our markets by a foreign monopoly

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Red Precipitate
White Precipitate
Corrosive Sublimate
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which is now prohibited to a domestic monopoly. Some of the largest manufacturers have personally informed the department that what is needed is not a tariff change, but laws placing a foreign monopoly on the same basis as an American one.

Thus, briefly stated, has been the development of the situation with respect to potash and the dyestuffs in this country during the year. There have been many recent statements by government officials reviewing the situation as to both potash and dyestuffs, and within the past few weeks the Secretary of Agriculture has made public an elaborate statement covering the situation as to fertilizer materials. There have been some complications of the dyestuffs situation by the fact that it was affected by the course Great Britain has pursued with respect to limiting German commerce. Germany has sought to take advantage of the situation in efforts to force the lifting of the British embargo against German shippers by endeavoring to induce the American exporters to bring about such conditions as would permit of the exchange of raw cotton or copper for potash or dyestuffs, and has intimated a purpose not to let these commodities move out of German ports unless such exchanges are provided for. Very early in the year intimations were given in government reports from Germany indicating the German policy, which has been consistently pursued. She has from time to time suggested a willingness to allow shipments to be made in American ships only, or in exchange for cotton, copper or other products which Germany needs. A variety of suggestions have been made in reports from United States officials in Germany and from the German Foreign Office along these lines, and repeated references have been made thereto in statements given out by the State Department here, the British Embassy or the Trade Advisers' Bureau in the Department of State.

Petroleum and Allied Industries.

With the closing of the year 1915, a preliminary estimate made by government investigators indicated that the yield of petroleum during the year exceeded that of the heavy producing year of 1914, although the final figures are not completed.

Among the other immediate facts to be taken in connection with the petroleum industry during the year may be included the following:—

The continuation of the interference with export shipments of oil on account of the war;

Continued depression in production due to curtailment of exportation and want of shipping facilities;

Investigations into the oil industry in general, and particularly the rise in the prices of gasoline, together with alleged discriminations in price making, and the relations of pipe line transportation to the oil industry, as ordered by Congress and conducted by the Interstate Commerce Commission and the Federal Trades Commission;

Settlement of the issues involving leases in the Osage region of Oklahoma;

The notable announcement through the Interior Department and the Bureau of Mines of a process discovered by Dr. Rittman, of the bureau, for the economic production of benzol, toluol and gasoline; and

A decision by the Federal Court in Pittsburgh holding that railroad companies are not obliged under the interstate commerce law to furnish tank cars for the transportation of oil.

A mere statement of the foregoing propositions is sufficient to show that many important situations have operated upon the trade throughout 1915. With the opening of the year, the general petroleum industry, so far as production and immediate consumption were concerned, continued to be affected by the war conditions and limited shipments abroad. While there was considerable improvement in shipping conditions during the year, there were interferences and a number of seizures of oil-carrying vessels, even those destined to neutral countries.

As a natural result of the depression of the general oil market there was a fall in prices and a diminution of production in a number of the important fields and controversies arose between oil producers, pipe line carriers and refining companies, presumably allied with the pipe line companies, as to the alleged depression in prices being due to want of facilities for transporting oil. It is apparent from the results as they developed during the year that many of the difficulties attending the handling of crude oil disappeared and there was a marked improvement in the general production throughout most of the oil regions of the country. But these difficulties and a number of issues rising out of complications following the dissolution of the Standard Oil Company brought about action in Congress calling for investigations by the Federal Trades Commission and the Interstate Commerce Commission into these conditions. The Federal Trades Commission was requested to investigate the general oil situation, prices and the relations between producers, refiners, shippers and the transportation companies. The resolution, so far as the transportation question was concerned, was directed to the Interstate Commerce Commission, which made some findings for the information of Congress regarding the conditions in pipe line transportation and facts as to the alleged depression of crude oil prices because of refusal by pipe line companies to transport oil. The report by the Interstate Commerce Commission upon this resolution was made public late in the year and was unsatisfactory because incomplete, the important matter of the relations between the pipe line companies and the oil industry in general having been deferred to the report to be made by the Federal Trades Commission. In the main, however, the report by the Interstate Commerce Commission indicated that the failure of pipe lines to carry oil in the closing part of 1914 and in the early part of 1915, was caused by low prices and want of storage capacity for crude or refined oil which had accumulated because of want of shipping facilities for the export trade. The investigation by the Federal Trades Commission is still in progress with the prospects that it will not be completed for several months.

In connection with the petroleum industry in general, a victory was won by the United States Government in the Supreme Court of the United States involving claims of oil companies to vast areas of lands in California and elsewhere on which large developments in the production of oil have been made, and the lands revert to the Federal Government under withdrawal orders that had been issued in former years by the President of the United States.

Another pipe line question brought up by direction of an act of Congress, namely, for the proposed creation of a federal pipe line to connect oil fields in the South with the Gulf of Mexico in the interests of fuel supply for the navy was not completed, and it is expected that a report upon this plan will be made during the session of Congress early in 1916. This report is to be made by the Commissioner of Indian Affairs in conjunction with officers of the United States Navy.

The controversy over oil land leases in the Osage country of Oklahoma was decided after two general hearings in which the Secretary of the Interior ordered the cancellation of the so-called Foster lease and the making of leases for limited areas of oil lands under increased royalties to be paid to the Indian owners of land.

Probably the most important event, as having a bearing upon the petroleum industry and allied products, was the announcement through the Interior Department and the Bureau of Mines of the perfection of a process for cracking crude oil and the production more economically of aromatic hydro carbons and gasoline from such crude oil. The announcement in regard to this discovery was made by the Interior Department officials early in March, and in connection therewith it was asserted that Dr. Rittman, employed by the Bureau of Mines, had perfected the system through laboratory tests and that the government had entered into an arrangement with the Aetna Explosives Company of New York, with a branch for the manufacture of explosives in Pittsburgh, for a thorough test of the commercial possibilities of the Rittman process. The company agreed with the government to expend at least $200,000 in an effort to ascertain the commercial value of the Rittman process in the production of benzol, toluol, and gasoline. The results of these experiments were satisfactory to the government officials. They announced that considerable quantities of benzol and toluol had been produced in the Pittsburgh plant of the Aetna Company and that the company shortly would enter upon the production of gasoline on a commercial basis. Thereupon, the government severed connections with the Aetna Company and immediately offered opportunities for any oil operators in the country to establish plants according to the Rittman principles, and to utilize that process in the production of the commodities for which the system is expected to be of high value. Several months were spent in negotiations between the officials of the Bureau of Mines and oil operators in all parts of the country and in the latter part of the year announcement was made that three or four companies had accepted the terms of the government and would install the Rittman system. It was stated, also, that at least a dozen other companies have the subject under consideration with a view to installing the system. Pending the preliminary investigation the government filed applications for patents, on behalf of the people of the United States, for the Rittman system, and although intimations have been given that the patents will be granted, final action was not taken by the Patent Office before the year closed.

Among the difficulties surrounding the installation of the Rittman process for commercial purposes in the oil industry of the country is the fact that the conditions imposed by the Interior Department through the Bureau of Mines require that all rights to the process and all improvements made therein, during the operations under license by the Federal Government to any commercial company, should be the property of the United States, and all beneficial results in the way of improvements should become the property of the Federal Government under its patent for the process. Naturally, even the larger companies declined to make the heavy investments necessary to install the process under such conditions, but after investigation it was disclosed that a sufficient number of oil operators would install the Rittman system to have what is expected by the Bureau of Mines to be an appreciable influence upon the gasoline market and probably upon the market for benzol and toluol. The results under the Rittman process have been watched very closely by government officials and by oil operators, as well as by those who are interested in the establishment of a domestic dyestuffs industry, because of alleged possibilities of large increases in the economical production of benzol and toluol. It was understood at the time the Aetna Explosives Company entered upon the test of the Rittman process that this work was directed specifically to obtain materials from which to manufacture explosives.

The changes in conditions throughout the oil industry resulting from the interferences through war conditions caused much disarrangement in the fields of production of oil and the by-products. It is for this reason that much interest attaches to what may be disclosed by investigations under government auspices of the relations between the production of crude oil and the transportation thereof, and the production of gasoline and other petroleum products, as well as the claims made in some sections of radical changes in prices under circumstances which point to discriminations. At the same time information has been brought to the Federal Trades Commission that because of the increased demand, gasoline prices are certain to continue to rise for a time, at least, and that on account of better facilities for the production of gasoline some of the large corporations have been able to undersell competitors in most of the markets of the country. So much of the investigation as has been completed throws no light upon this subject, but is devoted to production and to the transportation of crude oil by the pipe lines, the stock ownership of pipe line companies and the relations between the refiners and buyers of oil.

In connection with the successful prosecution of suits by the Federal Government, to obtain lands alleged to be occupied by oil operators in California, it has been admitted by Federal officials and members of Congress that much injustice has been wrought and already suggestions of plans for relief of oil operators have been proposed for the consideration of Congress. The idea seems to prevail that the activities of the Federal Government in the California fields and the proposed piping of crude oil for government purposes, particularly for navy fuel, has or may have important influences upon private companies engaged in the oil industry in all its branches throughout the country.

The Harrison Law.

After several years spent by officials of the State, Treasury and Departments of Justice in efforts to bring about action by Congress in accordance with agreements made by the United States Government for controlling the opium traffic and trade in kindred habit-forming drugs, Congress, during the winter of 1914 and 1915, passed the Harrison anti-narcotic law, which became effective on March 1, 1915. In many respects, as having both a direct and indirect bearing upon the trades in drugs, chemicals, etc., whether manufacturing, wholesaling or retailing, as well as consuming, this legislation was probably the most important and far-reaching of any action taken under Federal authority during the year. Since the law became effective, the remainder of the year has been spent by the Treasury officials in preparing and formulating rules and regulations to secure uniformity in the enforcement of the law and to aid in its operations. Decisions upon questions raised as to the operations of the law in particular instances have also been issued.

Although the law has not been in effect a full year, may of its most important features have been interpreted and have been the subject of attack either in the executive departments or in the courts. At the present time the vitality of the law is attacked in a case pending in the Supreme Court of the United States, which goes to the root of the question whether the Harrison law in its terms and conditions is applicable to consumers of habit-forming drugs, as well as to those who are required by law to register and suffer penalties for violations of the act. At the same time there is pending before the department issues raised as to the soundness of several decisions made by the United States Bureau of Internal Revenue, with the approval of the Treasury Department, intended to interpret various provisions of the act. Following the presentation of a number of these issues and trials in various courts, several important conferences were held in Washington during December having a bearing upon various features of the Harrison law. These meetings were called by the Drug Trade Council to present for the consideration of the department the issues raised in two Treasury decisions covering preparations, remedies and prescriptions and, also, the requirements in another decision pertaining to the preparation and signing of narcotic order forms. The National Drug Trade Conference also held a session during the month, at which expressions were given antagonistic to the attitude of the department on some of these decisions, and taking a stand against any amendments in the Harrison law until existing issues in the courts and in the departments have been settled. While these issues were being raised, the Secretary of the Treasury was engaged in making an announcement in his annual report to Congress of approval of a series of recommendations for amendments in the Harrison law as follows:—

First. A tax on the drugs specified, based upon some unit of weight, such tax to be denoted by stamps affixed to original packages or containers, and that the list of proscribed drugs be extended to include chloral-hydrate and cannabis indica, and other drugs having the same general properties, with a clear definition of "substitutes" and "synthetic substitutes" for such drugs.

Second. The repeal of section 6.

Third. That registration under this law shall be limited and restricted to persons lawfully entitled under State laws to dispense, prescribe, administer, or have in possession such drugs.

Fourth. That the writing of prescriptions, filling, keeping records, and the altering or forging thereof, be definitely and fully covered by the law, with adequate provision for the punishment of the offenses denounced therein, and providing that the tax imposed upon drugs shall not attach to prescriptions compounded from drugs once tax paid.

Fifth. That every person registered under the provisions of this law be required to keep record of all narcotic drugs purchased, received, dispensed, distributed, prescribed, or administered, and that collectors of internal revenue be authorized to require sworn statement covering such registered person's operations in these drugs for a given period.

Sixth. That all of the general provisions of the internal-revenue statutes, including those relating to seizures and forfeitures, be extended to and made to apply to the drugs taxed and the persons upon whom special taxes are imposed under this law.

Seventh. That some provisions be made for the treatment, either by the Public Health Service or such other agency as may be designated, of indigent persons unfortunately addicted to the use of these drugs, where the operation of the law brings about conditions necessitating such treatment.

The law amended to embody the essentials of the suugestions herein outlined would produce greater revenues and at the same time accomplish the objects in view, and make this legislation of great benefit to the citizens of this country by restricting or entirely eradicating the use of narcotics for other than medicinal purposes, which, prior to the enactment of this law, had become an evil of gravest menace.

It was these recommendations of the Treasury officials that the representatives of the drug trade who assembled in Washington had in mind when they went on record as opposing any changes in the Harrison law before pending issues as to the law have been decided.

It is fair to state, with reference to the operations of the Harrison law in general, that government officials, as well as representatives in the drug trade, unite in saying there has been a decrease in sales of habit-forming drugs and the supplying of such drugs to addicts. These opinions are based not only upon the records kept by druggists as to diminished sales of habit-forming drugs, but on the records made in the courts wherein, in a great majority of cases, the efforts of the Federal Government to enforce the law have been sustained. Most of the vital features of the law have been discussed in formal findings by the courts. The most radical blow struck at the law is that embraced in the decision by the Federal Court at Pittsburgh, which is now on appeal in the Supreme Court of the United States, wherein the lower court held that simple possession of the inhibited drugs by a consumer, who is not bound to register under the law, is not a violation of the law. The government, through the Department of Justice, in its presentation of the government's side of this controversy in the high court, has attacked this ruling with vigor, and holds that section 8 of the law clearly covers all persons who are not entitled to have possession of these drugs unless they are registered pharmacists, physicians or others specifically mentioned in the act.

The principal issue now pending before the department, and on which decisions are expected early in the year, cover Treasury decision 2213, as to preparations, remedies and prescriptions, and 2244 as to requirements regarding the preparation and signing of parcotic order forms. It was held by the department in the decision with reference to prescriptions as follows:—

Attention is directed to the paragraph on page 4 T. D. 2172, relating to the exemption of certain "preparations" and "remedies" from the provisions of this law. The question arises whether or not "prescriptions" come within the definition

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of "preparations" or "remedies," as given in the act. The word "preparations," as generally used and understood, means ready-made or prepared medicines, and the word "remedies" means that which cures or is efficacious in a specific disease or diseases under all conditions, while the term "prescription" is the written directions or receipt of a physician for the compounding or preparing of a medicine and directions for its use to meet the existing conditions in the case of a particular patient.

It is therefore apparent that the exemptions in section 6 of the act as interpreted in T. D. 2172, relating to "preparations and remedies" containing not more than the specified quantities of the drugs enumerated, do not apply to "prescriptions" written by registered physicians calling for any quantity of the narcotic drug, unless such "prescription" is written for a "preparation or remedy" prepared in accordance with the United States Pharmacopoeia, National Formulary, or other formula, or for a "remedy or preparation" prepared under private or proprietary formula, carried in stock by a dealer, which may be dispensed without a "prescription."

Every "prescription," therefore, containing a narcotic drug in any quantity, with the exemptions noted, must have indicated thereon the name and address of the patient, the date, the name and address of the physician, and his registry number. Such "prescriptions" cannot be refilled and must be filed for a period of two years.

On the one hand, it is contended by the government that no authority exists for requiring a record to be kept of prescriptions which contain minimum quantities, and this answer is made to the druggists who ask the right to refill prescriptions containing minimum quantities. Those who contend that within the meaning of the law a prescription is the same as a preparation or remedy, as provided for in section 6, are calling attention to a synopsis of rulings made by the department in Treasury decision 2172, wherein, in speaking of the manufacture of exempted preparations, the department held as follows:—

A dealer or manufacturer using any quantity of narcotic drugs mentioned in the law for manufacturing preparations which in their finished state are exempt should keep a correct record of all such narcotic drugs used for this purpose.

It is contended that the department has gone beyond the requirements of the law in this provision, as there is no specific authorization in the law for keeping records pertaining to those remedies and preparations that are specifically exempt under section 6 of the act. These are questions that are to be threshed out between the representatives of the Drug Trade Conference and the department some time in January, 1916.

Another decision of the department that has been attacked by the drug trade as imposing unnecessary hardship is the first paragraph of Treasury decision 2244. This paragraph requires that in entering on order forms the items calling for narcotic preparations and remedies, "the quantity of narcotic drugs to the ounce must be indicated, or if ordered in tablet form the total number of tablets and the quantity in grains per tablet should be stated." Recognizing the hardships imposed upon the trade by this ruling, the department issued a subsequent order that the effective date of the operation of this decision should be postponed until January 1, 1916. Later, upon the request of a committee representing the National Drug Trade Conference, the department further extended the effective date of this ruling, and the matter is now open to be finally determined after conferences between the representatives of the drug trade and the department.

According to the expressions given by lawyers in the government service who are familiar with the terms of the Harrison law, that measure will stand the test of the controversies that have been raised in the courts. The fact that the general principles of the law are sustained by the drug trade, as well as by the department, serves to give assurance that while there may continue to be differences in opinion as to methods of procedure, the narcotic law has come to stay, and it will gain in favor and efficiency each year. Some peculiar decisions have been rendered upon it by the courts, but these are to be reviewed in high tribunals. On practically all questions of importance involving the material details of the act the government has been sustained.

Operations of the Tariff.

In addition to the unfortunate influences disturbing international trade conditions consequent upon the war and its interference with shipping facilities between this country and foreign countries, whether those at war or neutral countries, the operations of the so-called Underwood tariff have been the cause of considerable complaint throughout the various trades. The duties imposed under the law were attacked at the time the measure was enacted by all friends of adequate protection as being not only too low, but calculated to discriminate against many industries, particularly chemicals and allied lines, because of the lower rates of duty imposed under the law on finished products and the unusual policy followed in the construction of the act of imposing, for the first time, duties upon many of the raw materials that were imported for the production of finished products. In practically every respect the criticisms of the law for these defects have been justified.

It is a notable fact that although the war conditions prevailed throughout the entire year and trade between the United States and the two great industrial and commercial countries of Germany and Austria, with their hitherto extensive shipments of chemicals, drugs and kindred products to the United States has been practically anihilated, and the trade in these lines with most of the other countries of Europe have been seriously interfered with, the total figures for the importation of chemicals, drugs, etc., during the first ten months of the year aggregated $70,142,738 worth, as against $68,744,756 in the corresponding months of 1914. Imports of many lines of commodities such as rubber, copper, nickle ore, matte, etc., large quantities of which were in demand by producers of munitions of war for export, greatly increased throughout the year. It is to be observed, however, that practically all of these increases in importations are from neutral countries and it is a matter of considerable speculation among students of international trade, and the operations of customs laws upon such trade, whether if the war in Europe had not existed the lower duties of the present tariff law would not have operated greatly to interfere with the interests of American producers in practically all lines, and especially in those of chemicals, drugs, oils and kindred products.

Apart from the regular operations of the tariff in its imposition of duties upon imported products, the principal events in connection with the law during the year was the sustaining by the courts of the provision of the Underwood tariff law authorizing the payment of a rebate of five per cent. of duties collectible on commodities brought into the United States in ships flying the American flag. This provision of the law has been the subject of severe attack by the administration of President Wilson, and while the general idea of the rebate was sustained by the Board of General Appraisers, the government appealed the case to the United States Court of Customs Appeals. The decision of that court was even more favorable to shippers and disadvantageous to the Government than was the decision by the Board of General Appraisers. It has been estimated that approximately $15,000,000 might actually be lost to the Treasury through rebates of tariff duties if the law shall stand as it has been interpreted by the United States Court of Customs Appeals. The Government has not been content with this, and has appealed the case to the United States Supreme Court. It required special legislation by Congress to authorize such an appeal and that was provided for in the last Congress.

The new Congress, opening in the latter part of the year, finds the Democratic administration on the defensive as to the tariff, and their justification of the law is that all branches of the act including the income tax, would, under normal conditions, produce adequate revenues. The opponents of the law assert that under normal conditions the revenues might have been somewhat increased, but nothing in like the proportion that would result under a protective tariff, and that the heavy importations from the great commercial countries of Europe in normal times would have increased under the Underwood tariff, had it not been for the war, with consequent detriment to American industries. As naturally might be expected bills were promptly introduced in the new Congress for the complete repeal of the Underwood law, and a great variety of amendments have been suggested, but, having no possibility of passage unless there shall be a change in the political complexion of Congress, which another election only can determine. This issue promises to be one of the chief features of the general elections for 1916.

Food and Drugs Law.

With reference to the operations of the food and drugs law throughout the year, the attention of the government officials was chiefly directed to the enforcement of the regular provisions of the act, which included a large number of seizures and prosecutions in the courts for misbranding and adulterations of food and drug products. The only features of the law requiring attention was the enforcement of the so-called "Sherley amendment," passed by Congress three years ago, and which has resulted in a great number of seizures of commodities under which it was alleged by the government false and fraudulent claims were made as to the alleged curative properties of medicinal compounds.

Another question that has been before the food and drug officials in the Department of Agriculture has been the issue raised with respect to the policy adopted in May, 1914, providing for the abolition of the guaranty legend on labels under the food and drugs act. Soon after the announcement was made of the abolition of the guaranty legend, the department was engaged in meeting complaints, on the part of the manufacturers and dealers in food and drug products, that the time allowed for the doing away with labels bearing the guaranty legend was too short. As a result of these complaints, practically a year has been given; indeed, up to May, 1916, for working up all of the old labels. This time, it is now claimed, will be insufficient, and at meetings of drug and other organizations held within the last month, requests have been made that the department shall grant a further extension of time.

One of the principal issues raised with respect to the abolition of the guaranty legend is whether the department shall favor, or at least not object to, guarantees placed upon labels whereby the manufacturer or dealer personally gives a guaranty as to the quality and character of the goods thus labeled. Discussing this question, the department has invariably held that while it does not oppose the use of personal guarantees if strictly made separate from anything which might indicate that such guaranty is an act of the Federal Government, the department does not favor the use of personal guarantees on labels, but suggests that all such guarantees be given by manufacturers or dealers as a separate matter, as a protection for the buyer if issues shall be raised under the food and drugs law. In connection with this subject, the department issued a statement in September as follows:—

The government does not favor a personal guarantee by manufacturers or producers upon labels. The department officials recognize, however, that such personal guarantee can not be excluded if it is desired by the manufacturer or producer to use such personal guarantee. But the restrictions testify to the purpose of the government to prevent anything being placed on the market which indicates a guarantee under the Federal food and drugs law. It is required that such personal guaranty shall contain no reference to the United States or the Department of Agriculture and the use of the words "uner the food and drugs act," etc., must also be discontinued. It is intimated, however, that the article is warranted by the manufacturer, or the designated person, to comply with the requirements of all State laws or of certain named States. It is permissible that the personal guarantee on the label may be that "the guarantor himself guarantees the contents of the package to be pure, wholesome, or free from adulteration." It is the purpose of the government, however, to prevent the use in personal guarantees on labels reference to the Federal law or the United States in any way.

At different times during the year announcements have been made by the officials charged with the duty of enforcing the food and drugs law of seizures and condemnations through final actions in the courts of a large number of drug compounds which were held to be misbranded because of false and fraudulent claims as to the curative properties of such compounds. These seizures and condemnations followed the provisions of the so-called Sherley amendment to the law, which was intended to cure a defect pointed out in the act by the Supreme Court of the United States in the celebrated "Johnson case" three years ago. These issues with reference to false and fraudulent claims as to curative properties is now to receive another test in the Supreme Court of the United States. Attention has been called by the department officials to the fact that in many instances these drug compounds are now not labeled with representations as to "curative" qualities, but the words "remedy" or "remedial" are employed instead of curative. The point is made by the officials that as a matter of fact the articles which generally come under the condemnation of the law are not less remedial than they are curative in their essential properties.

In the latter part of the year the issue was squarely raised in a proceeding in court whether the provisions of the Sherley amendment to the food and drugs law covers the ground as contended by the government. This issue was raised in a case brought in the Federal Court of Nebraska involving the seizure of a number of cases of "Eckman's Alterative." The point has been raised in this case, against the contention of the government, that the representations with reference to the alleged curative properties of this medicinal compound were not on the labels of the bottles, but in circulars placed within the package. The government contends that the law as it was amended by the so-called Sherley amendment covers such representations when contained wthin the package which holds the commodity shipped in interstate commerce.

There was also much discussion of the constitutional rights of manufacturers and shippers, and allegations that procedure under the Sherley amendment denies rights secured to the citizen under the fifth and sixth amendments to the Constitution.

The government's case, handled by the United States Department of Justice, squarely denies all the points made in opposition to the Sherley amendment by the shippers of Eckman's Alterative. They point out that Congress sought to prevent false and fraudulent claims as to curative properties, and have used words intended to cover such representations, whether made on labels or in any printed matter connected with the shipments.

The Insecticide Law.

There were no material changes in policy or the regulations with respect to the enforcement of the insecticide law during the year. During at least four or five months of the year, however, the Department of Agriculture, through the board charged with the duty of enforcing the insecticide and fungicide law, called attention to condemnation proceedings that had been brought to a successful issue by the government against insecticides and kindred products shipped in interstate commerce. In practically all these cases there were charges of adulterations and misbranding, because of failure of these insecticides to stand the test of analysis according to the representations made upon the labels. In some instances adulterations were practiced, and notices of judgment were made public by the department showing the action taken by the courts in dealing with these cases. As an illustration of the policy pursued by the Insecticide Board, that board has from time to time issued announcements of notices of judgments, and also made public a series of general statements called for in correspondence between the trade and officials of the Insecticide Board, as to the character of certain products used in the manufacture of insecticides. As an illustration of these, the question was raised early in the year whether the government would expect that paris green shall be absolutely free from sodium sulphate. In response to the inquiries on this subject, the chairman of the Insecticide Board made the following announcement:—

We have examined many samples of commercial paris green and are satisfied from our work that there is no reason why the sodium sulphate in commercial paris green should amount to more than 1 per cent., provided the green is properly washed when it is being prepared. That the sodium sulphate can be kept below 1 per cent. by proper washing is shown by the fact that the paris greens of some manufacturers never, or practically never, contain more than this amount of the constituent; that the paris green of other manufacturers only contains very slightly more than 1 per cent. sodium sulphate, and that the average amount of sodium sulphate in the paris green of a large number of manufacturers amounts to less than 1.2 per cent.

In samples of your paris green recently examined by us we have found over 3 per cent. sodium sulphate, which can easily be reduced to a reasonable figure (1 per cent. or below) by proper washing of your green. With 3 per cent. sodium sulphate in the green you will at once see that the manufacturer in every 100 pounds of his goods sells three pounds of sodium sulphate at the price of paris green. This may not amount to very much in any one case; however, in the aggregate it amounts to a considerable gain to the manufacturer at the expense of the consumer.

Other statements were made by the board in answer to questions as to "liquid lice killers." In these statements, the board calls attention to a large number of tests that have been made of these preparations, and adds that the board "so far has failed to find a single one which is effective against chicken lice when used in accordance with the first set of directions given." These comments refer to certain commodities and the directions for their use, to which the attention of the Insecticide Board has been called as failing to come up to the standards and representations made by the manufacturers of the products.

Within the past month the Insecticide Board has made announcements of judgments in the courts involving about twenty different insecticides on the market, which were held to be adulterated or misbranded within the terms of the law.

One of the latest announcements made during the year by the Insecticide Board related to the character of labels to be used on certain solutions utilized in the treatment of sheep scabies. The Insecticide Board made the following announcement as to such labels:—

Since the revised regulations now effective exclude from official dipping certain preparations which were previously permitted under regulations 33, B. A. I. Order 143, and upon the containers of which the guaranty statement was required by these old regulations, it follows that the appearance of this guaranty legend, or any reference to the use of the article in official dipping, upon packages or labels of such preparations entering interstate commerce, or otherwise subject to the provisions of the insecticide act of 1910, other than permitted brands of lime-sulphur dips and nicotine dips after June 30, 1915, in the first case, and March 1, 1915, in the second case, would be misleading and deceptive, and the articles consequently misbranded under the insecticide act of 1910.

Manufacturers of preparations affected are hereby informed that on and after the date of issuance of this notice no statement or statements indicating that an article may be used in official dipping shall appear upon the label (see regulation 10 of the Rules and Regulations for Carrying Out the Provisions of the Insecticide Act of 1910) of such articles unless permission for the use of said article for the aforesaid purpose has been granted by the department under the regulations as set forth in B. A. I. Order 210 and amendments thereto. It is respectively suggested that manufacturers may utilize labels which are defective only by reason of the presence of the guaranty legend quoted above, with or without statements indicating that the article may be used in official dipping or that the dilution recommended is officially recognized by the department, by entirely obliterating such

Preparedness

in the matter of your containers during the coming year is an all important subject. The recurring advances in market prices on all kinds of metals, carry an inference beyond the increasing cost of containers. We suggest an early consideration of needs as far as possible in advance of required time for deliveries.

American Can Company

legend and such statements if they appear, the method of obliteration depending, of course, upon the style of label.

The foregoing will serve to illustrate the active work that has been going on and the efforts of the government to enforce the provisions of the insecticide law, and the character of regulations and announcements that have been made intended to be helpful to the trade in carrying out the provisions and requirements of the law.

The Emergency Revenue Law.

The law passed by Congress a year ago intended to make up deficiencies in the revenues of the government caused by the falling off of customs duties on account of the European war, and curtailment of international trade, operated throughout the year and was the subject of many different rulings by the Treasury Department, and, also, of much complaint on the part of manufacturers and dealers in commodities specially taxed under this act.

During the period from October 22, 1914, down to June 30, 1915, the emergency revenue law brought in under schedule B covering taxes on perfumery, cosmetics, etc., approximately $2,961,000. From schedule A, including all kinds of documentary stamps the law brought in more than $20,000,000.

In the face of this showing as to the results under the emergency revenue law, manufacturers of perfumery, cosmetics and other articles taxed under schedule B, insist that the provisions of the law are unnecessarily burdensome upon the trade and particularly so in view of the comparatively small revenues brought in from that source. Indeed, they assert that the burdens upon the industry by taxation is in the aggregate much greater than the amount of revenue actually brought into the Treasury.

These assertions by those who are taxed under schedule B, and the facts as to their complaints, were brought squarely before Commissioner Osborn of the Internal Revenue Bureau, shortly before the opening of Congress in December. Nevertheless, the Commissioner recommended and Secretary McAdoo approved of the recommendation, temporarily continuing in effect during 1916 the provisions of the emergency act. It is understood that following other recommendations made by President Wilson and Secretary McAdoo, additional items of taxation are to be provided in a revised and amended revenue bill to be passed during the winter session of Congress.

Beginning with the first year of the operations of the emergency law a number of decisions were made by the Internal Revenue officers covering the application of the law to tooth and mouth washes, toilet powders and preparations, and many lines of shipping as covered by bills of lading, etc., affected by the emergency revenue law. One of the important decisions handed down by the department early in the year affecting articles taxed under schedule B of the act was one, the essential parts of which are as follows:

All petroleum and vaseline and similar substances used in the arts and trades, such as the manufacture of lubricants, inks, transparent envelope windows, shoe polish, waterproofing, etc., may be removed from the factory or refinery without payment of tax or affixing the stamps to the containers. All finished or refined petrolatum and vaseline or similar substances removed from the factory and sold to consumers in jars, bottles or cans, including white, blue label, perfumed, etc., for sale at retail for toilet purposes must be tax paid. The tax must be paid in all cases by the manufacturer or refiner, except as hereinafter provided.

All manufactures of any character subject to the tax under schedule B, such as petrolatum, bay rum, toilet waters, chewing gum, talcum powder, etc., removed from the factory in any quantity, in a finished condition, that is, bottled or otherwise packed for the consumer, or for sale at retail, must be tax paid by the manufacturer and have the necessary stamps affixed to the container. Manufactures which are shipped in bulk by the manufacturer in an unfinished condition; that is, those which require to be repacked, labeled and otherwise put in salable condition by others, but which are otherwise in condition for ultimate consumption, and sold under their own, or other names, may be removed from the factory or customs house without payment of the tax or having the stamps affixed to the container. In case of manufactures which are used only for toilet purposes, the following label or caution notice must be affixed to the container:—

"These goods are removed in an unfinished condition and need to be drawn off into smaller containers, labeled, wrapped and otherwise put in a salable condition at retail. Notice is hereby given to the person thus drawing same off, labeling, packing and placing them in a salable condition at retail, that the tax must be paid by the person thus putting same in salable condition at retail, and the necessary stamps to be affixed to the bottles or other containers into which same are drawn."

In connection with the decision there was prepared for the guidance of the trade a form of label to indicate that commodities have been drawn off for the use of the trade and other directions given in order to prevent double taxation.

Another decision issued early in the year provided that wholesale dealers, shippers, importers and other persons who put up goods in suitable conditions for sale to ultimate consumers at retail would be deemed manufacturers of such goods within the operations of the emergency revenue law. There was a limitation in this decision, however, which stated that it would not be held to include retail dealers whose chief business is vending, but who occasionally compound in small quantities taxable compounds under the statute. A number of other decisions under the law touched the question of labels, the transfer of taxable commodities from larger packages to small packages, etc.

In this form the emergency revenue law operated throughout the year with the results as to revenue receipts as stated above.

In connection with the recommendations made by the President, Secretary McAdoo and Commissioner Osborn, as to increased internal revenue taxes, it is supposed that efforts will be made during the session of Congress to add to the list of articles taxed for emergency revenue purposes, gasoline and other petroleum products, denatured alcohol and inner-combustion motor engines. These suggestions were contained in official statements made by these heads of the administration and they were promptly met by vigorous protests in and out of Congress. During the first few weeks of the session, which began in December, the administration's plans for revising the emergency revenue law had not been perfected nor had the committees of Congress given any consideration to the increases proposed.

The Oleomargarine Situation.

The Committee on Agriculture of the House in the Congress which expired on March 4, 1915, was so evenly divided on the subject of oleomargarine legislation, and safeguarding the interests of the dairy producers of butter, that no progress was made during that Congress on any legislation pertaining to oleomargarine in any of its relations. The subject was brought up at different times on various measures intended to meet the situation as to the manufacture and selling of oleomargarine, but the dairy interests, as represented on the committee, were able at all times to prevent consideration of oleomargarine bills.

Renewed interest in the subject is caused at this time by the recommendations contained in the annual report of Secretary McAdoo proposing a flat tax rate of two cents a pound on oleomargarine regardless of color, and making other changes in the existing law.

During the year there were also some changes in the regulations pertaining to the marketing of oleomargarine in interstate commerce, and continued discussion from time to time of the frauds of which the revenue officials complained as being constantly recurring in the enforcement of the oleomargarine law.

During the early part of the session of Congress in January last, a bill was presented in the House by a St. Louis member intended to bring about important changes in the oleomargarine law. The principal point in this measure was that it would authorize the artificial coloration of oleomargarine provided such coloration was not in any way injurious to health. A similar bill has been reintroduced in the present Congress.

It will not be until the Committee on Agriculture of the House has organized and taken up for consideration some of the measures pertaining to oleomargarine that any idea will be obtained as to the prospect of such legislation.

Under the existing law the Internal Revenue Bureau, early in the year, modified some of the regulations for the enforcement of the oleomargarine law, and the first provision in regulation 9 of that law was changed to read as follows:—

No device or brand shall be imprinted upon any brick, print or roll of oleomargarine packed in any statutory package unless the word "oleomargarine" is also impressed thereon in letters not less than two-thirds of the size and of relative shading to those used in expressing any brand or word used by the manufacturer: Provided, where the word "oleomargarine" appears on two or more panels or sides of the bricks, prints or rolls in plain legible letters equally displayed with any brand or word used by the manufacturer, the letters in the word "oleomargarine" may be less than two-thirds the size and shading as above described, but in no instance shall the letters in the word "oleomargarine" be less than one-fourth of an inch square. When no display is made except a device, then the word "oleomargarine" shall be impressed on such bricks, prints or rolls in letters not less than one-fourth of an inch square, and in all cases the word "oleomargarine" shall be equally displayed with any device, brand or word used by the manufacturer in close proximity thereto and on the same surface of such bricks, prints or rolls.

It is also provided in connection with this change in the regulation that the same rule as indicated above is made to apply where any device, brand or word is used on any wrapper or carton incasing bricks of oleomargarine in interstate commerce. With this situation existing throughout the year, the Secretary of the Treasury approached the matter of oleomargarine in connection with the general plans of the Wilson administration for securing additional revenue. In his annual report the Secretary said, among other things, with reference to oleomargarine legislation:—

It is again recommended that the present law be amended by repealing those provisions imposing a double rate of tax on the product and special taxes on dealers, and substituting therefor a flat rate per pound and single rates of special taxes upon wholesale and retail dealers, with provision for individual or original packages of certain sizes fixed by the law, each of which shall bear the tax-paid stamps, marks and brands so as to clearly identify the character of the product to the purchaser.

Under such a law imposing a flat rate of 2 or 3 cents per pound, and special taxes of $240 and $24 per annum upon wholesale and retail dealers, respectively, without regard to the color of the product, it is estimated, upon the basis of production for the fiscal year ended June 30, 1915, that the total collections would amount to from $4,500,000 to $7,000,000 per annum, with a continued increase in the collections from this source in proportion to the increase in the production of oleomargarine.

As it will readily be seen, this proposition reopens, if the Committee on Agriculture shall consider it, the old issue that has long been up before Congress, of attetmpting to regulate colored oleomargarine by some measure other than by a prohibitive tax of ten cents a pound: In other words, while not discussing the relative merits of oleomargarine and butter, Secretary McAdoo conceives the idea that so long as the oleomargarine law is ostensibly a revenue measure, that wise policy would dictate that it should be so framed as to produce the greatest amount of revenue.

Those people throughout the country who manufacture oleomargarine, or are interested in the great variety of valuable products, including beef fat and cottonseed oil, which enter into the production of oleomargarine, insist that as their commodities are wholesome and nutritious articles of food, there is no justification in imposing any tax upon them except for policing to regulate the business and prevent oleomargarine being sold as butter. In other words, they contend the way to reach this problem is to bring oleomargarine squarely under the provisions of the food and drugs law, which would be calculated to prevent fraudulent deception in the marketing of oleomargarine. Of course, this policy is not satisfactory even to the butter manufacturers, who mislead their trade by coloring January butter to imitate the color of June butter. They insist that "butter is butter," regardless of color, and that no coloration can make oleomargarine butter.

About the middle of the year Secretary McAdoo of the Treasury made a general statement regarding what he claimed were widespread violations of the oleomargarine law involving, according to the estimates made by the revenue officials, an aggregate of more than $27,000,000 through what the government claimed were fraudulent practices by the oleomargarine manufacturers in evading the terms of the law. After calling attention to the fact that the Commissioner of Internal Revenue had already recovered $851,000, with a prospect of further large collections, Secretary McAdoo made the following statement, which, it is believed, is the basis of his recommendations later in the year as to a change in the rate of taxation in the interests of the operations of the law and the collection of revenues for the government. Among other things Secretary McAdoo in this statement said:—

This statute was enacted in the interest of the farmer, but unquestionably he has not received the full benefit from it because of the extent of the frauds. It is designed to permit oleomargarine, as such, to compete with butter, and to prevent the public from being deceived into the purchase of oleomargarine as butter. Whether the tax on colored oleomargarine is too high is no concern of the Treasury Department in connection with its duty to enforce the law.

It is confidently believed that this investigation has checked, if not stopped, the extensive fraudulent practices, and it is the determination of the Treasury officials to bring every law breaker to justice. The investigation will be continued along vigorous lines and the public, the Treasury, the farmer, and the honest oleomargarine manufacturer protected as far as it lies within the power of the government to do so.

While the facts set forth in the commissioner's preliminary report relate primarily to oleomargarine frauds developed during the past year, the activities of the bureau during the two full fiscal years (1914 and 1915) of the present administration have resulted in the detection of a total of approximately 6,000 frauds or illegal practices of this character. As a consequence of this rigid enforcement of the statute, the receipt of the government from oleomargarine taxes during these two years have been the greatest in the history of the law, representing more than 24 per cent. of the total collections of oleomargarine taxes from 1902 to 1915.

The attitude taken by Secretary McAdoo on this subject and the presentation of a formal bill intended to place colored oleomargarine on a par with butter, provided the colored oleomargarine shall not be injurious to health, renews the contest over this subject for the Congress which opened in the last month of the year.

Naval Stores Industry.

Marked progress was made in the direction of securing the general adoption of standards for rosin in the naval stores trade during the year. The preliminary steps in this work, it will be recalled, were taken by the Bureau of Chemistry in the Department of Agriculture, after an investigation extending over many months, as a result of which glass types of standards were prepared under the direction of the bureau officials. These standards were submitted at conferences and conventions of the producers, dealers in and consumers of rosin, with the result that in June the situation had so crystallized throughout the naval stores trade that it became evident that, on a commercial basis at least, these standard types for rosin would be adopted in the trade.

There was some difficulty attending this movement, however, because of differences of opinion existing with respect to certain features of these standards. Before action was taken by the New York Produce Exchange the bureau standard types had been adopted in the principal naval stores markets in the South, and Florida had passed a law adopting the standards as proposed by the Bureau of Chemistry. Shortly after this the New York dealers agreed to the bureau types, and as a result of the agitation of the subject practically all of the naval stores markets in the country had adopted the standards as proposed by the Bureau of Chemistry.

Thus stands the situation without any legal approval under which these standards for rosin can be enforced. Throughout the year there was considerable discussion in the trade, and among members of the National Paint, Oil and Varnish Association, regarding the character of legislation which should be secured from Congress intended to legalize the standard types for rosin as they had been adopted in the trade. A committee appointed at a conference in Washington a year ago, representing the producers, factors and consumers of naval stores, ultimately agreed upon a bill which was made public in tentative form through Colonel J. A. G. Carson, of Savannah, chairman of the committee. Later a bill of substantially the same import, but differing in what those who are studying the subject regard as merely minor details, was proposed on behalf of the National Paint, Oil and Varnish Association, and these propositions are certain to be presented for the consideration of Congress during the winter session.

The essential features of these rosin grades and standards as proposed in the form of legislation meet the approval of the officials of the Department of Agriculture, because the plan is in many respects along the same line as has been proposed for establishing standards for grain, flour and other food stuffs.

The scientists of the Department of Agriculture believe that it is practically impossible to enforce uniform practices in trade unless there is some generally understood and enforced standard under which sellers sell and buyers buy. In many respects these rosin grading and standardizing bills follow the same general principles as grain-grade bills that have been pending in Congress for the past two or three years.

Throughout the year the department officials have closely studied the situation with reference to the workings of the standard types proposed and also have spent considerable time in the investigation of the question of net weights and tare allowances in rosin shipments, including the varying types of barrels utilized in the trade and the changes in weights of rosin under different conditions of shipments.

When the subject comes up for consideration in Congress the department officials will be prepared, on the reports made by field agents and investigators in the department, to present considerable information in aiding to perfect legislation on the subject.

Notes.

In connection with the activities of the newly organized Federal Trades Commission, an important inquiry has been set on foot which will have a bearing upon the international trade of the country. This inquiry has been extended over the country with a view to ascertaining the sentiments of American purchasers and exporters on the question whether there can be anything like agreements as to prices at which commodities shall be sold in foreign markets without violation of the anti-trust laws of the United States. This movement orginated in a desire expressed by exporters that there should be a common understanding through which commodities should be sold abroad by a single agent representing a number of exporting concerns. A large amount of testimony has been taken in different parts of the country and it is expected that the Trades Commission will formulate some plan or submit a basis for legislation by Congress on the subject.

So far as Congress is concerned, the only progress made in the matter of considering the so-called Stevens price regulation bill was the taking of testimony at hearings given by the Interstate Commerce Committee of the House in the closing days of the last

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Congress. The retirement of Representative Stevens from Congress has necessitated the reintroduction of the bill under another name. The bill has been reintroduced and there shortly will be laid before the Committee on Interstate Commerce recommendations by the National Drug Trades Conference and other organizations favorable to the general purpose of the bill, and efforts will be made to obtain further hearings and an early report by the committee on the measure.

The efforts of the government to improve conditions in the over-ocean carrying trade have been attended by a somewhat general acceptance of the provisions of the law of the last Congress authorizing transfers of vessels from foreign flags to the flag of the United States. During the past year about 150 vessels, with a total tonnage of more than a half million gross tons, were added to American registry, and in this list was included probably forty tank-line steamers for the over-ocean trade in petroleum and its products. The administration has changed front to some extent on the proposed measure for a national shipping law, and a new bill on somewhat different lines from the one proposed in the last Congress will be offered for consideration during the present Congress.

One feature of the several different movements inaugurated to promote the foreign trade of the country amidst the difficulties caused by the European war was the organization under private auspices of an overseas corporation, organized under plans similar to those which have been utilized in Holland and other neutral countries for insuring that shipments shall not be diverted to hostile countries after reaching the neutral markets. The State and Commerce departments have given encouragement to the policies outlined by this overseas corporation.

Many of the plans for increasing internal revenue taxes proposed by President Wilson's administration are certain to be vigorously combatted in Congress. In addition to the suggestions for internal revenue taxation upon petroleum and some of its products, a suggestion was made to Secretary McAdoo and Commissioner of Internal Revenue Osborn that a tax of 10 cents a gallon be imposed upon denatured alcohol. Senators and representatives from the agricultural States who are complaining about advancing prices in gasoline assert that instead of taxing denatured alcohol, the greatest liberality should now be adopted by the government for encouraging the production of denatured alcohol for use in power plants.

Flaxseed Markets

MINNEAPOLIS.

The year in the flaxseed crushing industry was more or less of a disappointment locally. The 1914 crop was small and of poor quality. At the start of the year there was considerable seed marketed that the crushers did not particularly care for, but with only limited supplies to be had from the domestic crop, the less desirable quality was picked up and stored if the crushers could get same at a reasonable price compared with the better grades. Perhaps half of the daily arrivals were of good quality. The rest was poor Minnesota seed. Linseed oil buyers were not very active in the market at the beginning of the year and naturally the crushers did not want to carry a large stock of raw material. Any time that good seed could be bought for storage it was taken without hesitation for future use. Owing to the low prices prevailing, the farmers accepted storage tickets on a large portion of their deliveries late in 1914 and they retained ownership until well into the new year, when prices began to go higher. This muddled the situation some and put the line elevator companies and shippers in the gap. However, prices showed a tendency to gain on the futures and for this reason the buyers were able to get out of their storage deals with a fair profit.

Perhaps the salient feature of the domestic market was the tendency of the farmers to either hold their seed back or take storage tickets for deliveries. Prices started this year around $1.60, which was considered very low by the producers on account of the light crop. After a temporary recession early in January, the market began to climb rapidly and around $1.75 some of the farmers began to let go. Many of them held for $2, but in this they were disappointed for a time, but along in March the market reached that level and the selling out of storage tickets was liberal enough to bring on another reaction, which proved very moderate. A backward spring and poor prospects for sowing the new crop brought the market up again, but fine weather along in June started the market downward, low prices being reached along in July.

The clean-up of the 1914 crop was as thorough as it could very well be. When the sowing season started the farmers had not enough flaxseed on hand for seeding, and when frost killed off the first sown seed they had to come to Minneapolis for fresh seed supplies. North Dakota was badly hit by early and late spring frosts and farmers had to do considerable re-seeding. Some seeding was done as late as July 4 in Montana. Minnesota farmers bought considerable seed flax in the Minneapolis market because of the very quality they raised during 1914 and also because of the heavy admixture of watergrass seed in their supplies, which could not be separated very well. Along in the summer the plentiful rains and cool weather gave promise of a phenomenal yield in North Dakota. Frosts early in the season had killed off weeds and the condition of the fields was excellent, but an unexpected frost late in August wrought havoc with the North Dakota crop and reduced the oil yielding quality decidedly. In fact, the frost made "57 different" varieties of seed and the buyers experienced great difficulty in placing a value on the stuff when it began to come to market. The frost was very freakish and the country was spotted from its attack. Latitude did not seem to cut much figure, some counties south suffering more heavily than northern counties. Where the farmers expected ten to fourteen bushels to the acre, they were glad to get six to seven bushels when threshing time came. Yields of four bushels to the acre were not uncommon and some fields were not cut at all because there was not enough seed of quality left in the pods to pay for harvesting. The government estimates of the crop were given little credence by the crushers, even the final estimate, which was much reduced, was considered much too high by them. Montana was the only State to have complete success with a flax crop during the year, and the best seed came from the late sown acres. The quality of the Montana seed, much of which was sown on new ground, was excellent on the average. The North Dakota seed that escaped frost was also very good. South Dakota seed was perhaps a little better in quality than the crop raised during the previous year, but there was little or no improvement in the quality of the Minnesota seed except that there was much less watergrass seed mixed with it. In spite of the fact that their seed is of very poor quality and brings low comparative prices, the Minnesota farmers continue to sow flax year after year.

The hope of the flax trade at present is the new land being broken in the newly settled Missouri slope country and Montana. This ground is excellent for producing flax and with a normal season good returns are to be had. This year the season started in with prices very low and with the world-wide demand for wheat at high prices there was a smaller acreage given over to flax than would have been the case had flaxseed prices been fairly high and wheat prices lower. At the prevailing price of wheat and flaxseed farmers thought they saw a much better per acreage profit in raising wheat and it is a wonder they sowed as much flaxseed as they did. One thing that did help to bring up the flax acreage some was the continued rainy spell in the spring, which prevented the sowing of considerable wheat. At the last moment many farmers turned over a large acreage intended for wheat to the production of flax. This coming during it is thought that there will be quite an increase in the flaxseed acreage in new country. Wheat prices are not showing the anticipated strength and flax prices have appreciated greatly, though the gains during January were credited largely to speculative conditions and may not hold long enough to be an incentive to produce flaxseed during the coming year. Taken all in all, the farmer had fair to good success with flaxseed during the year 1915 and this would naturally encourage him to try raising it again this year.

Marketing of seed was never on a liberal scale at any time during the entire year. At the beginning the farmers held back on account of the low prices, and when prices did advance the farm reserves proved very disappointing and stocks on hand in Minneapolis, which totaled 384,941 bushels at the beginning of January, gradually dwindled to less than 5,000 bushels during October. In the main the policy of the crushers was to convert the seed into oil as rapidly as it came in, as there was a very good domestic demand for oil meal during the early months of the year, and later there was a good export demand for cake. Then, too, it was cheaper to carry the oil than the seed. About the time the 1915 crop was ready to harvest untimely rains set in and delayed the threshing of all grains. Farmers always leave their flaxseed threshing for the last licks and this resulted in a very slow start for the terminals. Considerable of the seed that came in at first very plainly showed the effects of the harvest rains, being damp and in poor shape to handle.

One noteworthy feature of the season was the bringing back of a large quantity of Minnesota and South Dakota seed from Duluth after the Minneapolis crushers had passed it up early in the year. This development was due to the big export demand for cake more than to any other cause, although the crushers did not realize that the country was so bare of seed when they turned the offerings down during the spring and early part of the year. Sharply advancing prices of cake resulted in liberal contracts for delivery during the summer and early fall and the crushers oversold on that commodity. When it came time to deliver on these contracts there was considerable scurrying around to get seed to crush, and with no other supply available, the crushers had to take over large lots of seed that had accumulated in Duluth elevators. Some of the seed was taken on July contracts and some was bought outright. Had the crushers been foresighted enough they would have saved considerable money, as the freight to and from Duluth had to be reckoned in the final cost. This year the crushers are allowing much of the poor seed to be reshipped to Duluth for mixing, even though they speak of the big oil demand that is bound to come sooner or later. However, the Argentine situation has something to do with their attitude. At present Minneapolis seed stocks are very light and there is very little stuff moving from farms. If the estimates of the crushers are correct, there is no great amount of seed left on the farms and when 1916 seed flax is accounted for, there is small prospect of getting enough domestic raw material to take care of any important oil demand and oil stocks locally are abnormally low for this season of the year.

The demand for oil was not the important factor in making the demand for flaxseed this fall. Big oil cake contracts with Eastern exporters and foreign buyers were the main factors. Normally the seed movement is liberal in October, but this year the rains delayed the movement considerably and as the time for cake deliveries drew near, the crushers were very much worried over the situation. Seed was needed badly and farmers could not deliver very much of it. Some South Dakota and Minnesota seed began to arrive in fair time, but the supply was not large and it was not until the North Dakota crop began to move, at the last moment, did the situation ease up. In spite of the strong need of supplies, prices failed to move up very sharply. This was due to the ample supplies of Argentine seed coming to this country, which kept the speculators at a little dubious. The North Dakota crop moved in a straggling way, even when weather conditions permitted, and it was only by team work between the different crushing companies that the November cake contracts were filled on time. The September and October movement of seed in 1915 totaled but 1,375,000 bushels, compared with a total of 2,500,000 received during the months in 1914.

A greater proportion of the movement this fall was in the direction of the lakes. Most of the crop was raised in territory which was naturally tributary to the Duluth market, and with Eastern crushers getting a large share of the oil trade, the demand here was not strong enough at times to prevent the Duluth buyers from picking up liberal supplies for storage. Compared with a year ago, the Minneapolis market receipts were over a million bushels smaller, while at Duluth the loss was about half that amount.

Local crushers were disappointed at not being able to get more of the Canadian seed this year. Prices locally were strong enough at times to make the market propitious, but if the shippers failed to clean the seed they paid duty on a lot of dirt, and if they cleaned the seed the apparent profit was used up. It is expected that considerable of the Canadian seed will be crushed in Minneapolis mills before the season is over unless the domestic crop shows a greater reserve than at present estimated. Samples of the Canadian seed received here show that the crop is spotted, very much like the North Dakota crop. Both crops were raised under about the same conditions. The few cars of seed that did come from Canada proved of good quality, however, and the crushers were anxious to get more of it.

Domestic seed felt the competition offered by Argentine offerings rather sharply. Along toward July, when the old crop had been pretty well cleaned up and the bulls were beginning to hope for a very sharp advance on the domestic, news offerings of Argentine seed began to increase liberally and very low prices were quoted, at times the Eastern crushers being able to get supplies at 10c. under what local crushers had to pay. This Argentine movement also cut the Canadian crop out of a market on this side of the boundary and this year it is doing the same thing, barely the local crushers have received some very liberal offerings of Argentine seed at prices that would make it possible to Minneapolis mills. This gives the Eastern crusher an advantage over the local crusher, and in view of the fact that only large amounts are available local crushers are not inclined to try the experiment of bringing the stuff west for the time being. Should domestic seed prove too scarce to take care of the oil demand from territory served by local crushers it is very likely that some of it will be crushed here. Local elevator supplies of seed are much smaller than they were a year ago, but Duluth stocks are much heavier. It is entirely possible that the cheaper offerings of Argentine seed will induce the Eastern crushers to neglect the Duluth seed later on, and in that case Minneapolis crushers will probably bring it back here again, as was done this past spring and summer.

The supply of Canadian seed is not very liberal and local prices are holding pretty close to a level that is liable to bring some of it over the boundary. The big effort of the Canadians seems to be to bring the wheat crop to the Atlantic seaboard for shipment to England. This has tied the railroad systems up pretty bad, and conditions are not favorable for shipping to this country at present. A return to normal conditions with the railroads might see more of a disposition on the part of Canadian holders to sell stuff on this side of the line.

The speculative element in the flax market were considerably confused and the tone of the futures was very nervous. The drastic fluctuations in the late summer of 1914 made the smaller traders wary and they did not seem to get in this year as in former years. The larger traders were at a deadlock for some time, but there was a sharp break in prices when a car of 150,000 bushels of Argentine seed was delivered to Duluth for use in Minneapolis mills during the latter part of July. This was the third time that Minneapolis crushers imported foreign seed for pressing, but the need was considerable. At present there seems to be a strong undertone to the market, due to the continued interest in the buying side, but whenever the market gets to going strong there is always somebody to fill the demand. It is generally understood that none but Northwestern grown seed can be applied on Duluth contracts, but it pressed for a ruling it might develop that other stuff of even better quality could be delivered. If there is none but Northwestern seed acceptable on the contracts the holders would be able to milk the market contentedly if the farmers refuse to deliver supplies more freely than they are at present.

There was an attempt made to market some of the Kansas seed here this year, but the quality of the stuff offered was so uniformly poor that no trade resulted. A car or so was consigned, but met with such a poor demand and low price level that further shipments were discouraged.

Harvest this year was several weeks behind the usual time. During the first week in September five cars of new stuff came in, four from Southern Minnesota and one from South Dakota. The same week several lots of seed were offered to arrive from Montana and North Dakota, but it was not until the third week of September did any new North Dakota seed arrive. It was dryer and in better shape than the crushers expected, but this did not prove a criterion of what was to come. The first few cars were in good shape, but immediately following there was a lot of damp seed received. The unusual amount of rainfall during the growing season also made the moisture tests on seed very liberal. A lot of the nice, plump-looking seed contained so much water that the oil yield was very low comparatively, and the commission house salesmen were a little disgruntled when they received some very low bids on apparently choice seed. It took some time to educate them as to the value of the different qualities they had to dispose of during the year. For a time the crusher buyers themselves were at sea as to the proper value of the seed offered them, and much experimentation work was necessary to establish the different qualities from sight. A very liberal quantity of scabby seed came from North Dakota this year on account of the early and late frosts.

While there was a large proportion of the crop still uncut in North Dakota and Montana snow storms raged throughout that territory and threatened material damage, but warm weather immediately following saved the situation for the farmers, though there was some damage done by the moisture as the farmers could not get around to threshing promptly after the snow had cleared up.

In one thing the crushers were considerably disappointed. Owing to the rather stringent financial conditions prevailing in Canada it was expected that the Canadian farmers would ship much of their seed to our market immediately after harvest, regardless of the price level, but for some reason or other the movement failed to come as expected. Canadian futures are holding close up to the domestic futures right along, only the duty of 20 cents intervening.

One feature of the situation this year was the difficulty in getting reliable estimates of the amount of frost damage done the crops. Farmers and grain men in closely contiguous territory could not agree as to the real extent of the loss due to frost. Where a farmer in one county said "it never touched me" the farmer in the next county would complain of heavy damage. Even after the crop had been moved to a large extent it was impossible to get a fair line on the situation. Line elevator companies could not give reliable estimates because of the conflicting reports received from the farmers. Much speculation was based on the various reports and for a time the market was very choppy. A number of the large farmers bought flax futures as soon as they found that damage had been done their fields and many of them were able to recoup their field losses in the futures market.

There was rather a sharp demand for the November seed, and with most of the holders stubborn, there was quite an advance. Eastern crushers were anxious to fill out cargoes before the close of navigation, and the supply at Duluth was practically cleaned up before the last boat went down the lake. Now the stocks at Duluth are accumulating again.

The early government estimate of 18,441,000 bushels of flaxseed met with ridicule at the hands of the crushers and flax traders in general. Most of them were inclined to think that perhaps 15,000,000 bushels would be raised if frosts held off. When the frosts came in time to nip the crop private estimates of yields were reduced to 12,000,000 bushels. The government ignored the frost damage for a time, but eventually reduced the estimate considerably.

While the movement to market in December was about 2,000,000 bushels behind that of the previous year, when the crop really began to move, it moved in volume around the first of the year. Trading on the basis of the December future died out earlier than usual this year, and with a liberal discount under the May future quoted for cash supplies the line elevator companies began to accumulate supplies in their country houses and hedge them in the May future. This did not last long, as the crushers wanted some seed and they bid prices close up to the May to get it. This resulted in rather liberal shipments from the country for a time. Beginning the new year there is practically nothing moving from farms, and country elevator stocks are not liberal. There is some stored seed being carried for the farmers, but the elevator companies are inclined to hold the actual seed against the storage tickets because of the possible sharp advance in cash prices compared with the May future.

LINSEED OIL.

It was no big year in the oil market for local crushers, although some of them managed to eke out a fair amount of profit on the limited business accomplished. Oil buyers, as a rule, were bearish all through the crop. At the start of the year they failed to place any big orders, and some of them were backward in furnishing shipping directions on contracts they had made for shipment in January and February. It was along in January before any of the buyers began to be interested in spot offerings, and few of them would consider the deferred at all. However, along toward the end of that month the advance in prices began to make buyers nervous, but they all waited for a setback before placing their orders. As a result, few of them were able to get into the market at the favorable level that prevailed at the start of the year. The up movement started late in January, and prices fluctuated at a much higher level until along in June and July. Where the crusher was willing to take a chance on twenty-four hour old quotations, ignoring the day's advance, some deferred business was picked up, but rank and file of jobbers and paint grinders refused to book any large contracts for the balance of the season. The constant hanging back for a reaction values availed nothing to the buyers, and they were compelled to come into the market and pay full values, most of them

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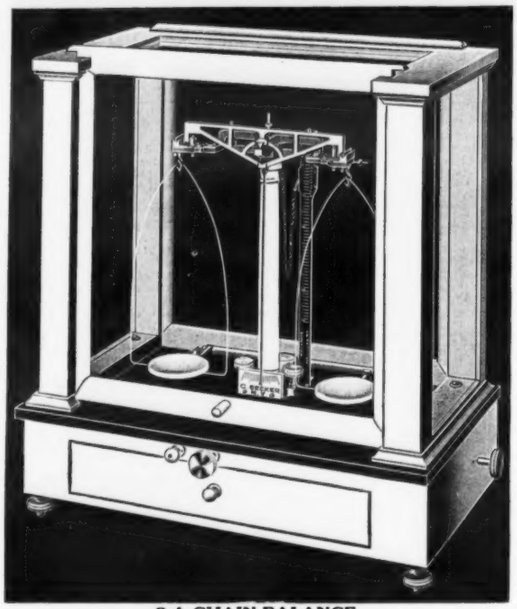

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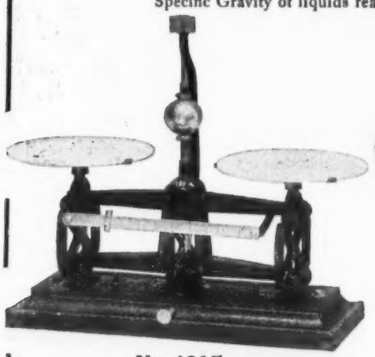

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taking the stuff only as they needed it. Naturally this resulted in a draggy and featureless market.

The volume of the demand was not as heavy as the crushers expected. With considerable steel work going up right along, and a fairly heavy building program, it looked as though the demand would more than equal the supply, but there was no season when the demand was really big. Supplies in local tanks at the turn of the year were fairly heavy, and it was well along in the spring before they were exhausted. Toward the end of the season the crushers were compelled to take care of orders from new pressing operations, and some of the oil hardly had time to settle before it had to be shipped out.

The advent of Argentine seed in the East cut down the territory served by local oil crushers along in the spring, and in place of exhausted supplies of seed and oil at the end of the season, there was a very small amount on hand when the new crop began to move, although it is doubtful whether there would have been anything on hand had not there been 150,000 bushels og Argentine seed brought here to press. This helped matters some, and prevented a bulge in prices.

Quotations around 47c. during the first week of January did not appeal to the oil buyers, but they were never reached again until the season was over and a large new crop was in sight. Efforts to stimulate trade with the paint mixers failed during the first month or so, and the crushers finally resigned themselves to a slow draggy market for the balance of the season, most of them demanding the full worth of oil at all times, and making a fair profit on their deals, even if they were light. In fact, the crushers were independent most of the season and refused to make any unreasonable concessions to get business. When the buyers refused to deal liberally in January the crushers thought they were slow in taking their inventory. Lack of shipping directions in that month seemed to bear out this theory. Along in February there was a better run of shipping directions, but the buyers refused to make fresh committments of importance, but as February is usually a rather dull oil trading month, little was thought of the light business. However, each succeeding month was the same, and although the crushers managed to get rid of their supplies before the new crop began to move in volume at the same time, it was not an exhilarating year from the crushers' standpoint. The restriction in territory served offered by the Eastern crushers getting cheap Argentine seed and reaching out for new territory was quite a disappointment. With the Argentine seed unaavilable to the Eastern crushers there was a good chance of cleaning up a portion of the Canadian crop.

The annual clean-up and paint-up week that was inaugurated with much eclat this year, but the expected results did not develop. In fact, the trade secured for the retailers hardly more than dented their stocks of oil and paint, and the crushing trade did not benefit much from the program.

Perhaps the most noteworthy feature of the year was the lack of insane competition among the crushers. Now and then, when a crusher had a favorable position on the market as regards raw material, he was inclined to undersell competitors and get the bulk of the trade for a time, but on the whole, there was a fairly equabl e distribution of orders through the season. Crushers did not run very heavily except for short periods, and one of the big mills did not operate until late in the season. Shipments of oil totaled about 24,000,000 pounds less than the shipments of the previous year.

LINSEED OIL MEAL.

The meal market started the year in the vicinity of $33.50@34.00, which was too high a level to encourage free buying of that commodity, and trade did not develop very broadly. However, the crushers managed to sell considerable stuff along in January and February and along in March, when there was a moderate recession in values, business picked up noticeably. At the high level there was considerable competition from Southwestern shippers of cottonseed meal noted, and this competition continued for some time. Crushers were enjoying a good trade in oil cake for export, however, and were not bothered much by the cottonseed competition. Along toward the end of March the meal market narrowed up again, but there was a ready outlet for the by-product of the mills to the export cake trade, and crushers were not worried at all over the lack of orders for meal. From April on the demand was quiet and featureless, with prices advancing because of the strong demand for cake at sharp advances. During the fall months there was a spasmodic demand for meal offerings. During the early winter there was a falling off in the cake movement, but this failed to result in any radical reduction in meal prices and offerings were moderate. Prices closed the year around $36.

LINSEED OIL CAKE.

The year 1915 was about the best ever in the cake market. The war in Europe made a very strong demand for American offerings, and local crushers shared in the business proffered. The shutting off of the Rhine crushing mills through all of the Holland Scandinavian business this way, and with a big demand for milk prevailing in Holland, there was an unusually large amount of cake fed to cattle. A lot of cattle was brought from Belgium to Holland, and this added to the needs of that country. During the early part of the year there was a liberal movement abroad, some of the crushers engaging freight room for the entire season and shipping as freely as their output would permit. Along toward the end of the year it was reported that the British Government had refused to permit further shipments of cake to Holland, which rather upset the trade for the time being, but some improvement is looked for later when matters are adjusted.

There was a large amount of cake contracted for to be shipped in the month of November, the business being accomplished to the Eastern export trade. The flax crop was very slow in moving, and it was feared that the cake could not be gotten out in time to fill these contracts, but at the last moment there was a fair supply of raw materials, and the crushers were able to look after their trades in time. There was a big rush to get the stuff down the lakes, but some of it had to be shipped by all rail routes to meet contracts made for December shipment from this side. There was some business late in the year for January and February shipment, but when the rumors of interference with shipments to Holland came there was a sudden cessation of buying.

Some of the large crushing companies shipped their cake direct to Holland and refused to trade with the Eastern exporters. As a result, some very big profits were piled up on the by-product trade.

During the year the movement of cake prevented any accumulation of a supply of by-product. The meal business was not large enough to take care of the output of the mills during the season, and the cake trade was a very favorable development. If the war lasts another year a large amount of business will be transacted with the foreign buyers of cake, and better preparations will be made to do more business direct with the foreign buyers.

Owing to the lack of ocean tonnage there was considerable difficulty experienced in getting the cake abroad at times. Some of it that was shipped in October and paid for by Eastern exporters had not been shipped abroad up to the first of the year, as the buyer could not get it extricated from the Eastern freight blockade in time to make connections with the boat on which freight room had been engaged. A large part of the movement was made via Baltimore and New Orleans, but the withdrawal of some boats from lines running to those ports resulted in deferred shipments. On the whole, the cake business was the biggest ever, and crushers are anticipating another good year. Prices were very strong throughout the season, and continue so in the face of the limited inquiry. There is no reserve on hand, and very little prospect of building up one from the moderate amount of flax left in the Northwest. There is bound to be a fair meal demand this spring, as millfeed prices are high and going higher, and so far no cottonseed meal has been offered to take the place of oil meal.

Monthly range of cash prices, daily closing quotations, for No. 1 flaxseed in the Minneapolis market for the calendar year 1915, with comparisons of the year 1914, follow:—

	1915.	1914.
January	$1.58¼@1.94¼	$1.45¼@1.52¾
February	1.80¾@1.92½	1.46¾@1.59
March	1.81¼@2.02½	1.52¼@1.61¾
April	1.85 @1.97½	1.49¼@1.58¾
May	1.89 @2.00¼	1.52¾@1.58¼
June	1.68¼@1.90	1.55¼@1.62¾
July	1.52¼@1.75¼	1.57 @1.89
August	1.57¼@1.72¼	1.54 @1.72
September	1.61 @1.87½	1.40 @1.66½
October	1.77 @1.91½	1.26½@1.43¼
November	1.81 @2.11¾	1.34½@1.48¾
December	1.99 @2.21	1.45¼@1.65

Receipts of flaxseed in the Minneapolis market during the calendar year 1915, with comparisons of the year 1914, follow:—

	1915.	1914.
January	599,010	711,480
February	443,200	478,380
March	384,250	592,260
April	142,200	269,740
May	76,800	138,900
June	146,450	164,950
July	235,700	232,750
August	114,770	166,950
September	346,610	901,030
October	1,038,180	1,890,040
November	1,505,640	1,246,820
December	1,113,210	1,015,930
Totals	6,148,970	7,159,730

Shipments of flaxseed from Minneapolis during the calendar year 1915, with comparisons of the year 1914, follow:—

	1915.	1914.
January	46,340	54,300
February	56,030	31,910
March	137,070	34,070
April	60,760	42,810
May	21,240	31,190
June	13,980	17,020
July	26,390	10,050
August	3,320	6,330
September	6,000	32,480
October	80,040	98,210
November	312,720	149,540
December	169,410	60,610
Totals	933,270	568,520

Stocks of flaxseed in public warehouses in Minneapolis the first of every month during the calendar year 1915, with comparisons of the year 1914, follow:—

	1915.	1914.
January	384,941	210,021
February	299,995	195,779
March	142,280	182,131
April	70,368	213,355
May	77,197	258,349
June	37,704	259,047
July	54,978	240,846
August	61,821	147,565
September	10,504	23,321
October	4,813	37,082
November	32,139	241,015
December	58,758	292,669

Shipments of linseed oil from Minneapolis during the calendar year 1915, with comparisons of the year 1914, follow:—

	1915.	1914.
January	8,942,431	10,145,593
February	8,022,265	10,603,134
March	11,032,262	13,601,805
April	10,646,976	14,472,556
May	11,840,898	14,286,614
June	11,539,689	15,328,609
July	9,279,943	9,968,630
August	9,253,956	10,680,356
September	10,250,330	10,789,810
October	9,536,081	13,080,602
November	11,180,627	10,620,457
December	6,812,378	8,838,280
Totals	118,337,776	142,416,846

Shipments of linseed oil cake and meal from Minneapolis during the calendar year 1915, with comparisons of the year 1914, follow:—

	1915.	1914.
January	32,552,035	29,537,793
February	21,064,237	21,979,463
March	19,050,502	21,449,571
April	10,879,771	14,901,373
May	6,247,700	10,230,593
June	8,118,124	9,086,393
July	10,216,307	10,371,033
August	13,478,555	17,387,593
September	16,611,881	19,039,577
October	14,072,172	23,345,841
November	27,534,276	37,544,775
December	26,390,516	35,613,713
Totals	206,255,006	248,207,524

Receipts of domestic flaxseed at Duluth during the calendar year 1915, with comparisons of the year 1914, follow:—

	1915.	1914.
January	153,953	364,748
February	92,353	62,115
March	220,726	48,057
April	224,380	139,493
May	125,579	57,515
June	86,874	185,397
July	186,542	322,971
August	28,869	81,398
September	14,707	89,455
October	228,386	1,362,347
November	2,764,902	2,212,076
December	916,293	561,914
Totals	5,043,563	5,487,486

Receipts of bonded flaxseed at Duluth during the calendar year 1915, with comparisons of the year 1914, follow:—

	1915.	1914.
January	105,286	85,114
February	126,712	12,067
March	42,251	94,537
April	15,093	237,383
May	3,290	172,965
June	.....	292,064
July	.....	270,235
August	13,096	10,653
September	.....	843
October	2,541	4,423
November	3,832	18,300
December	1,105	11,696
Totals	313,206	1,210,280

Shipments of domestic flaxseed from Duluth during the calendar year 1915, with comparisons of the year 1914, follow:—

	1915.	1914.
January	98,973	54,373
February	7,723	30,261
March	.....	31,262
April	13,106	3,919
May	385	377,525
June	25,526	85,477
July	.....	152,844
August	459,987	81,450
September	918,534	744,652
October	114,701	465,802
November	2,118,480	3,550,186
December	830,362	876,877
Totals	4,587,787	6,454,668

Shipments of bonded flaxseed from Duluth during the year 1915, with comparisons of the year 1914, follow:—

	1915.	1914.
January	.....	10,664
February	1,899	21,431
March	.....	23,290
April	.....	.....
May	29	95,609
June	.....	75,135
July	.....	58,846
August	.....	389,843
September	.....	293,553
October	.....	335,733
November	.....	4,459
December	.....	9,927
Totals	1,928	1,314,881

Receipts of flaxseed at Chicago during the calendar year 1915, with comparisons of the year 1914, follow:—

	1915.	1914.
January	31,000	46,000
February	21,000	20,000
March	5,000	17,000
April	.....	10,000
May	4,000	116,000
June	187,000	25,000
July	1,000	24,000
August	1,000	29,000
September	261,000	136,000
October	207,000	415,000
November	126,000	11,000
December	448,000	299,000
Totals	1,292,000	1,148,000

Shipments of flaxseed from Chicago during the calendar year 1915, with comparisons of the year 1914, follow:—

	1915.	1914.
January	8,000	1,000
February	1,000	.....
March	3,000	3,000
April	.....	3,000
May	2,000	1,000
June	.....	4,000
July	.....	.....
August	.....	4,000
September	.....	2,000
October	4,000	3,000
November	1,000	2,000
December	14,000	8,000
Totals	33,000	31,000

Receipts of flaxseed at Winnipeg during the calendar year 1915, with comparisons of the year 1914. These figures are based on the Winnipeg inspection. From January 1 to September 1 an average of 1,025 bushels to the car is allowed. From September 1 to December 31 an average of 1,150 bushels to the car is allowed:—

	1915.	1914.
January	301,350	470,800
February	154,775	232,100
March	339,275	596,200
April	395,650	999,900
May	154,775	811,800
June	190,175	630,300
July	128,075	369,600
August	34,850	88,000
September	11,275	390,500
October	272,650	753,500
November	661,125	784,300
December	550,850	411,400
Totals	3,132,825	6,538,400

Shipments of flaxseed from Fort William and Port Arthus during the calendar year 1915, with comparisons of the year 1914, follow:—

	1915.	1914.
January	17,952	604,175
February	9,130	44,464
March	7,790	22,135
April	30,401	34,913
May	123,222	875,708
June	290,895	222,698
July	154,457	1,863,784
August	186,138	201,362
September	368,817	654,289
October	602,737	1,539,494
November	340,825	960,183
December	484,255	716,257
Totals	2,522,617	7,739,451

DULUTH.

The flax market in Duluth—and elsewhere, it might be added—during the year of 1915 was the scene of a movement which, taken as a whole, could be assigned to "bull" dominance. The market, of course, had its set backs, but viewing the past twelve months as a unit, the market inclined to the higher levels rather than to the lower ones. The tables that accompany this bear out the statement admirably, even without taking into consideration the pressure caused by the war in the latter months of 1914, for with the exception of July, comparing 1914 and 1915 month by month, much higher prices prevailed in the latter year, and since July of this year the movement has been almost continuously upward.

The early part of the year 1914 was occupied in getting over the enormous crops of 1912 and 1913, and in the traders reassuring themselves against another enormous yield. That year, up to August 1, when war was declared, the market kept strengthening up, and it seemed as though the bulls would have their own way about matters. Then the war broke out and, viewed in the illuminating rays of hindsight, traders got frightened about nothing and slammed the cover on the market.

Perhaps one may be pardoned for going back into the now ancient history of 1914, but to properly review the market of the past year some reference is necessary to conditions immediately preceding that period.

Traders were convinced that the war and the consequent shutting down of every industry in Europe, meant the ruin of the flax market, and proceeded to meet the ruin more than half way; in other words, they started to wreck the market themselves. This condition of affairs kept up during August, September and October of that year. November showed a little better, and December improved still more.

It was not until January of 1915 that the traders began to realize how short-sighted they had been. They had not previously stopped to realize that while the ordinary demand for oil and cake had been shut off an era of extraordinary demand was born. With the warring nations rushing at boat building it meant that every craft was going to use up paint, and lots of it, the making of munitions required oil, and that hundreds of different things that times of peace never view were developing, all of which would mean the use of oil.

In January, 1915, they began to realize this dimly, and began to indulge their "hunch," but with fear and trembling. Nothing untoward happened and they grew bolder, for the demand was amazing them by its growth. This kept up, and by March, 1915, cash flax had sold at a high point of $2.09 a bushel in Duluth, with Minneapolis only ½c. lower. May seed had done better than that, although cash had come up in the Duluth market from a low of $1.25¾ in the previous October. May seed reached a high of $2.10 a bushel as early as March, 1915, July sold at $2.04¾ in May, and other options showed us equally as well.

In short, the traders here were thoroughly convinced that there was really a market for the seed and that there was going to be. They had also lined up pretty well on the idea that the world's crop about to develop was going to be very short, and so thoroughly convinced were they of this that the government's overly-optimistic reports did not scare them out.

This kept going on until the sinking of the Lusitania and the consequent negotiations between the United States and Germany. That was the most serious complication with which the United States had had to deal since the war broke out, and the traders were scary. They are more accustomed to it now, and these days the threats of breaking off diplomatic relations are taken with cooler thought. The Lusitania incident occurred on May 7 and almost immediately a slump in the market started. As the negotiations with Germany went on, and rumors persisted in making the situation look grave, the flax market continued to sag, until in July the low point of the year was reached. In that month the selling prices were much lower than in the corresponding month of 1914, which the following comparative table shows:—

	Cash	
	High.	Low.
1914	$1.88	$1.59⅝
1915	1.76¼	1.53
Difference	$0.11⅝	$0.06⅜

This depression occurred, of course, just before it was believed the crisis in International affairs had been reached. With the danger of a break with Germany averted, the strength of the seed began to return, and August showed an advance of 15c. over the low point of July, and a minimum advance of 5½c. As vitality after its fright began to flow back into its veins the market steadily rose, with only intermittent setbacks, each succeeding month overtopping the previous one, until December showed the high point of the year. December's high mark was 67½c. over the low point of the year, and was 11¼c. higher than the high point in the period before the Lusitania incident.

Since the first of the year the price has continued its upward flight, and there are those who declare that $3 a bushel is not too great an expectation.

These more optimistic bulls base their expectations on the decline in production and the increase in demand, both of which are marked, according to all available statistics.

One of two things that were marked about the past year was the rapidity with which flax moved once it got started. Of the 17,000,000 bushels produced in the United States in 1914 an enormous amount moved through Duluth, together with that which was left over from the 1913 crop, so that by the beginning of 1915 there was but little flax left in the elevators. Stocks in store, from month to month, were millions less than during the previous year, and in September and October, in Duluth and Minneapolis elevators, there were actually days when the bin bottoms were almost scraped. The second marked circumstance about the year was the drop in the handling of Canadian flax on this side of the line. War conditions, of course, were the cause. During the calendar year of 1915 the receipts and shipments of bonded flax as compared to the previous year were as follows:—

	Receipts, bushels.	Shipments, bushels.
1914	1,210,280	1,314,881
1915	313,206	1,928
Difference	896,972	1,312,953

As to the falling off in crop, both the United States and Canada suffered severely; hence the high prices, or, at least, that is a part of the excuse for them. The United States Government experts persisted for several months in estimating the crop for 1915 at over 18,000,000 bushels. Later events convinced them that they were in error and that the contentions of traders and crushers' representatives that the crop was much less were

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well founded. The Canadian crop, too, was over-estimated, in the light of recent developments.

The United States experts had over-estimated the acreage, in the first place, and had over-estimated the yield. Presumably the same mistake had been made by the Canadian Government estimators. In the final statement issued by the United States Government, the figures being recorded at the top of the accompanying tables, the estimate is that the American yield was 13,845,000 bushels on an acreage of 1,367,000. This is a considerable drop from previous estimates. It is still the contention of traders that the estimated yield is too high. It is said that the estimated acreage is just about correct, but the yield per acre is figured too large. It is the opinion here and among flax men generally that the commercial yield will be 10,000,000 to 11,000,000 bushels, the former being considered the more likely. Up in Canada 8,000,000 or thereabouts was the old estimate, earlier in the season. Now it is estimated at all the way from 2,500,000 to 3,500,000 bushels, with 3,000,000 being considered conservative. So far Canada has marketed less than 3,000,000, which will take in some of the seed left over from the previous year. Up to the end of 1915 Port Arthur-Fort William had shipped only 2,585,318 bushels, and that port is the outlet of the Canadian flax country; stocks in store were 781,000 bushels on December 31. So it would seem to be apparent that this continent has produced in flax this past season in the neighborhood of about 13,000,000 bushels of commercial seed. This is the lowest figure since 1912, which was the truly big year.

The world's yield has been dropping each successive year, and the yield of 1915 was woefully short. In 1912 the production was in round numbers 130,000,000 bushels; in 1913, 160 000,000; in 1914, 85,000,000, and it is compositely estimated that the world's yield of 1915 was about 70,000,000 bushels.

The following table is compiled from figures published by the United States Secretary of Agriculture:—

	Acreage.	Production in bushels.	Farm value per bushel Dec. 1.
1915	1,367,000	13,845,000	$1.74
1914	1,885,000	15,559,000	1.26
1913	2,291,000	17,853,000	1.23
1912	2,851,000	28,073,000	1.15
1911	2,757,000	19,370,000	1.82
1910	2,467,000	12,718,000	2.32
1909	2,083,000	19,513,000	1.53

Following is a tabulated statement of the range of prices in cash flax and the various options by months, receipts and shipments at the several Western markets, stocks in store and the like:—

The monthly range of closing prices for cash seed on the Duluth market in the calendar year of 1915, with comparisons of the previous year, follow:—

	1915.	1914.
January	$1.63½@1.93	$1.47¾@1.51¾
February	1.84½@1.91½	1.48¾@1.58¾
March	1.80½@2.06	1.54¾@1.61¾
April	1.89½@1.98¼	1.52 @1.59½
May	1.91 @2.02¼	1.55¾@1.59¼
June	1.70¼@1.85½	1.57¾@1.63¼
July	1.53 @1.76¼	1.59¾@1.88
August	1.58½@1.68	1.51 @1.69½
September	1.62 @1.82½	1.43¼@1.62½
October	1.76 @1.90¼	1.29¼@1.41½
November	1.87¼@2.12¾	1.34¼@1.51¾
December	2.00¼@2.20½	1.45¾@1.65

The monthly range of prices for cash seed at Minneapolis in the same year, with similar comparisons, follow:—

	1915.	1914.
January	$1.59½@1.94	$1.52¾@1.45¾
February	1.80¾@1.92½	1.60 @1.46¾
March	1.81¼@2.06¾	1.61¾@1.52¼
April	1.85 @1.97¼	1.58¾@1.49¼
May	1.87 @2.00¼	1.58¼@1.52¾
June	1.68¼@1.85¾	1.62¾@1.55½
July	1.52½@1.75¼	1.89 @1.56½
August	1.56½@1.74½	1.79½@1.52
September	1.59½@1.87½	1.59 @1.40
October	1.73 @1.91	1.48 @1.26½
November	1.84¼@2.11¼	1.58½@1.32
December	1.97¾@2.21	1.65 @1.43¼

The monthly closing prices of May seed at Duluth, compared with the prices in 1914, follow:—

	1915.	1914.
January	$1.63¼@1.94	$1.55¼@1.50¾
February	1.85½@1.91½	1.59¾@1.51¼
March	1.85¼@2.10	1.62¼@1.55¾
April	1.90¼@1.99¾	1.60¼@1.52
May	1.91 @2.02	1.59¾@1.56½
June	—@—	—@—
July	—@—	—@—
August	—@—	—@—
September	1.73½@1.86½	—@—
October	1.77 @1.89¼	1.54¼@1.55¼
November	1.89¼@2.11¼	1.53¾@1.40
December	2.04¼@2.24	1.65 @1.49½

The monthly range of closing prices for July seed for 1915, as compared with the same month of the previous year, follow:—

	1915.	1914.
January	—@—	$1.56 @1.52¾
February	$1.83 @1.88¾	1.61¾@1.53¼
March	1.86 @2.11½	1.64 @1.59
April	1.93 @2.02	1.61¾@1.54
May	1.93 @2.04¾	1.60¾@1.57
June	1.70½@1.87	1.63¾@1.57¾
July	1.55 @1.76¼	1.87½@1.59
August	—@—	—@—
September	—@—	—@—
October	—@—	—@—
November	—@—	—@—
December	—@—	—@—

The monthly range of prices for September seed at Duluth, as compared with those of the previous year, follow:—

	1915.	1914.
January	—@—	—@—
February	$1.85¼@1.92	—@—
March	1.85¼@2.09¾	$1.65¼@1.60
April	1.95 @2.03¾	1.61¾@1.55½
May	1.96 @2.07½	1.61¾@1.58¾
June	1.74 @1.90	1.65¾@1.60¾
July	1.54½@1.87¾	1.89 @1.61¾
August	1.58¾@1.68¼	1.70¼@1.52
September	1.61¾@1.84½	1.67¾@1.42¼
October	—@—	—@—
November	—@—	—@—
December	—@—	—@—

The monthly range of prices for October seed at Duluth in 1915, with comparisons of the previous year, follow:—

	1915.	1914.
January	—@—	—@—
February	—@—	—@—
March	—@—	1.59¼@1.60¾
April	—@—	1.61¼@1.53¼
May	$1.96 @2.05	1.59¾@1.56
June	1.75¼@1.89¾	1.63¼@1.60¼
July	1.56¼@1.80¼	1.90¼@1.61¾
August	1.59¾@1.70	1.73¼@1.55
September	1.62¼@1.82½	1.64½@1.43½
October	1.75 @1.89¼	1.41 @1.27¾
November	—@—	—@—
December	—@—	—@—

The monthly range of closing prices for November seed at this market in 1915, with comparisons of 1914, follow:—

	1915.	1914.
January	—@—	—@—
February	—@—	—@—
March	—@—	—@—
April	—@—	—@—
May	—@—	—@—
June	—@—	$1.62¾@1.60
July	$1.57½@1.80	1.91½@1.61
August	1.59¾@1.71	1.74½@1.59
September	1.63 @1.80½	1.66 @1.54½
October	1.73½@1.87½	1.42 @1.28
November	1.86½@2.08¼	1.51¼@1.33
December	—@—	—@—

The monthly range of closing prices for December flax on this market in 1915, as compared with those of the previous year, follow:—

	1915.	1914.
January	—@—	—@—
February	—@—	—@—
March	—@—	—@—
April	—@—	—@—
May	—@—	—@—
June	—@—	—@—
July	$1.57½@1.62½	$1.90¼@1.85
August	1.57¾@1.71	1.73¾@1.58
September	1.62¼@1.79	1.67 @1.46¾
October	1.71¾@1.85	1.43¼@1.28¾
November	1.84¾@2.07¾	1.49½@1.34
December	1.98¼@2.19	1.63½@1.49½

Receipts of flax by months in Duluth during the past twelve months, compared with 1914:—

	1915. Bushels.	1914. Bushels.
January	153,953	304,748
February	92,352	62,115
March	220,726	48,057
April	224,380	139,493
May	125,579	57,515
June	86,874	185,397
July	186,542	222,971
August	28,869	81,398
September	14,707	89,455
October	159,703	1,362,347
November	2,764,912	2,212,076
December	917,398	561,914
Totals	5,356,769	5,487,486

Shipments of flaxseed from Duluth during the past year, compared with those of 1914:—

	1915. Bushels.	1914. Bushels.
January	98,978	54,373
February	7,723	30,261
March	.....	31,262
April	.....	3,919
May	385	377,525
June	25,526	85,417
July	.....	152,884
August	459,327	81,450
September	918,534	744,652
October	106,690	465,802
November	2,118,480	3,550,186
December	830,362	876,877
Totals	4,589,655	6,454,668

Receipts of flax at Minneapolis last year, compared with those of the year before:—

	1915. Bushels.	1914. Bushels.
January	599,010	711,480
February	443,200	498,280
March	384,250	592,260
April	142,200	289,740
May	76,800	138,800
June	146,400	164,950
July	238,700	232,750
August	114,770	116,950
September	346,610	901,030
October	1,038,180	1,890,040
November	1,505,940	1,246,320
December	1,058,690	1,015,930
Totals	6,094,450	7,759,150

Shipments of flax from Minneapolis during 1915, compared with those of 1914, were as follows:—

	1915. Bushels.	1914. Bushels.
January	46,340	54,390
February	58,630	31,910
March	137,070	34,070
April	99,790	42,810
May	21,240	31,980
June	13,980	17,020
July	26,360	10,050
August	3,320	6,330
September	6,000	32,480
October	80,040	98,210
November	312,720	149,540
December	.....	69,610
Totals	.....	568,520

Receipts of flaxseed at Chicago during the year just ended, compared with those of 1914, were:—

	1915. Bushels.	1914. Bushels.
January	31,000	46,000
February	21,000	20,000
March	5,000	17,000
April	.....	10,000
May	4,000	116,000
June	187,000	25,000
July	1,000	24,000
August	1,000	29,000
September	261,000	136,000
October	207,000	415,000
November	126,000	11,000
December	448,000	299,000
Totals	1,292,000	1,148,000

Shipments from the same point with comparative figures:—

	1915. Bushels.	1914. Bushels
January	8,000	1,000
February	1,000	.....
March	3,000	3,000
April	.....	3,000
May	2,000	1,000
June	.....	4,000
July	.....	.....
August	.....	4,000
September	.....	2,000
October	4,000	3,000
November	1,000	2,000
December	14,000	8,000
Totals	33,000	31,000

The shipments of flax at Port Arthur and Fort William last year were as follows:—

	1915. Bushels.
January	13,208
February	8,154
March	68,988
April	30,401
May	117,868
June	299,791
July	155,074
August	175,698
September	370,867
October	512,200
November	328,566
December	504,052
Total	2,585,318
Total shipments for 1914	7,571,655

Receipts of flax at Port Arthur and Fort William, Ontario, last year, compared with the previous year, were:—

	1915. Bushels.	1914. Bushels.
January	173,859	604,175
February	88,550	44,464
March	197,882	22,135
April	390,154	34,913
May	150,105	875,708
June	137,062	222,698
July	87,116	1,863,754
August	47,358	201,362
September	11,938	654,298
October	175,018	1,539,494
November	584,507	960,163
December	612,970	716,257
Totals	2,656,629	7,739,451

Stocks in store in Duluth and Minneapolis elevators on the last day of each month in 1915 and 1914 were as follows:—

DULUTH.

	1915. Bushels.	1914. Bushels.
January	396,000	7,733,000
February	606,000	6,324,000
March	869,000	6,869,000
April	1,095,000	7,745,000
May	1,223,000	9,871,000
June	1,284,000	8,891,000
July	1,471,000	9,279,000
August	1,053,000	12,527,000
September	149,000	6,611,000
October	296,000	5,364,000
November	916,000	4,792,000
December	1,003,000	804,000

MINNEAPOLIS.

	1915. Bushels.	1914. Bushels.
January	385,000	1,018,000
February	300,000	726,000
March	142,000	829,000
April	74,000	916,000
May	77,000	1,255,000
June	38,000	1,006,000
July	55,000	737,000
August	52,000	489,000
September	36,000	61,000
October	8,000	561,000
November	32,000	1,083,000
December	238,000	2,695,000

The stocks in store at Fort William and Port Arthur on the last day of each month in 1915 and 1914 were as follows:—

	1915. Bushels.	1914. Bushels.
January	775,000	2,542,000
February	855,000	2,715,000
March	1,044,000	3,012,000
April	1,404,000	3,684,000
May	1,436,000	3,581,000
June	1,399,000	3,742,000
July	1,206,000	2,327,000
August	1,113,000	2,338,000
September	756,000	1,779,000
October	419,000	1,169,000
November	672,000	700,000
December	781,000	613,000

WINNIPEG.

The flax situation in Western Canada during 1915 was in some respects very different from that of previous years. Perhaps the greatest surprise of all was the falling off in production, according to the most reliable estimates. It is practically impossible to figure the output accurately.

Some good reasons have been advanced for the tendency of the farmers to neglect flax. Government officials and business men urged the farmers to grow as much wheat and oats as possible last season, with a view to helping the British Empire to the fullest extent in case of an urgent call for more food supplies on account of the war. There was also, probably, a selfish motive on the part of the business men, for they expected something similar to former "war prices" for grain, and were keenly anxious for a big harvest of money from crops, when capital from outside sources had almost failed to put in an appearance owing to the situation in Europe.

Farmers did turn their attention specially to wheat and oats, and flax production fell to the lowest point in years. It might be pointed out as another cause for this that the industrial situation was not favorable to the consumption of flax products. Building operations, for instance, fell away much below normal in nearly all of Western Canada; economy was practiced on every hand, and there was but a minimum demand for linseed oil most of the year. Flax here was almost entirely governed by outside markets, although the small crop in this country probably formed a factor in raising prices in the leading markets of the world.

Besides the foregoing, there was another reason why Western Canada farmers turned away from the raising of flax. The following figures show the flax yield in Manitoba, Saskatchewan and Alberta in the last few years:—

	Bushels.
1910	3,500,000
1911	8,000,000
1912	22,000,000
1913	14,000,000
1914	4,000,000
*1915	2,250,000

*Estimated.

Men in the trade remember that prices for the crop of 1910 were more attractive than previously; so much so that the farmers of Western Canada prepared for a rich harvest in the following year, and that accounted for the biggest flax yield in the history of this country. But prices did not hold up. The following list of prices in March of each year explains itself:—

Closing price of No. 1 Northwestern flax at Winnipeg was on

March 24, 1911	$2.46
March 20, 1912	1.88½
March 19, 1913	1.09¾
March 17, 1914	1.37

These figures are taken from weekly records kept, and are sufficient to indicate why the farmers who were induced to raise 22,000,000 bushels after the market had reached $2.46, became discouraged when it went down to near the dollar mark. The reason the dates in March are given is because that would be about the time the farmers would be making up their mind what to sow in the spring. The result, however, was, as noted, that the output of flax for 1913 fell off nearly 8,000,000 bushels, while that for 1914 was nearly 10,000,000 bushels less than that of the preceding year. According to the latest estimates of the Northwest Grain Dealers' Association, Winnipeg, the crop of last fall fell down to about 2,250,000 bushels. Men who have traveled through the agricultural communities of Western Canada state that the farmers are tired of their experiences with flax, both on account of the uncertainty of prices and on account of the trouble involved in raising it, threshing it, and so on.

On December 31, 1915, there were in store at Fort William and Port Arthur 781,219 bushels flax, as compared with 486,699 bushels at the end of the preceding year. Stocks in store at country elevators west of Winnipeg amounted to only 246,102 bushels, against 725,232 bushels at the end of 1914. The larger stocks this season at Fort William and Port Arthur are due to the congestion of grain traffic to Eastern points. Since navigation on the lakes closed, the shipments of flax from those terminals in the last week of the year having been but 18,266 bushels, as compared with 53,865 bushels in the corresponding week a year ago. Shipments from western points to Fort William and Port Arthur in the week ending December 31 totaled 61,039 bushels.

Recently flax prices here have been more encouraging to producers. The following were the closing prices for last week, Saturday having been a holiday:—

	Cash		Futures	
	No. 1.	No. 2.	Dec.	May.
Dec. 27	$1.89	$1.86	$1.89½	$1.97½
Dec. 28	1.89	1.86	1.89½	1.97½
Dec. 29	1.91	1.88	1.91	1.99½
Dec. 30	1.91¾	1.89¾	1.91¾	2.02
Dec. 31	1.92	1.90	1.94	2.02¾

All prices are on the basis of delivery in store at Fort William and Port Arthur. The figures at the close of the year were about 60c. higher than at the beginning of the year.

While there were spells of activity in demand, the flax trade at Winnipeg was generally quiet during the year, the small volume moving from day to day making business in limited compass. However, most of the time offerings, which were comparatively light, were readily taken up.

From the beginning of the crop year, September 1, 1915, up to the close of navigation on the lakes from Fort William and Port Arthur, 1,117,321 bushels of flax were received at those ports. There were shipped out in that period 1,633,099 bushels, 1,291,547 bushels of which went to United States ports.

Linseed Oil, Cake and Meal

NEW YORK LINSEED OIL MARKET

With a short crop of flaxseed produced in the American and Canadian Northwests in 1914 the linseed oil market during the first part of 1915 was influenced to a large extent by conditions in foreign markets. At the beginning of the year the question of supply and demand was overshadowed in importance by complications which had arisen in the shipping situation. Argentine seed was low in price, and it was offered in large quantities for shipment to this country. The scarcity of vessels, and the consequent sharp advance in ocean freights, however, served to restrict such shipments, and brought prices to high levels at delivered points. With the chance of obtaining low priced foreign seed thus eliminated, prices for both seed and oil in domestic markets grew stronger. The lowest price of the year was effective at the beginning of January when crushers were doing business in round lots at 48c. per gallon in cooperage.

Before the end of January the market price had gone to 59c. per gallon, with the shipping situation responsible for the rise. A fairly steady market ruled throughout February, with some easing off in values towards the close of the month, because of comparatively low priced offers of Argentine seed c. i. f. New York, and also because of the high prices which were realized on sales of cake for export to European countries. Early in March the first shipment of Argentine seed to this country was reported, and this, combined with quiet demand for oil, gave an easier tone to the market. Any break in prices, however, was prevented by a slump in export demand for cake, and a material decline in prices for the latter was the most important market factor in March. With the approach of the planting season the question of flax acreage became paramount. Unusually high prices for wheat and other grains caused farmers to take steps for increasing their production, and early advices on the flax acreage of the American and Canadian Northwests were extremely bullish, as they indicated a large decline in area, as compared with the previous season. As prices for cake were declining at that time quotations for oil strengthened, and values held above the 60c. level during the latter part of April and through May. Crop reports were of a more encouraging nature in June, and as offers of Argentine were under the levels asked for domestic seed the market eased off and, following the first government report of the flax acreage, which was issued early in July, there was a better feeling regarding the possibilities of the home crop. In August there was a recovery in cake prices, and as large amounts of Argentine seed had been imported crushers were able to offer oil on more favorable terms, and there were times around the middle of the month when better than 50c. could be done by buyers, and it was even reported some sales were made at 48c., which was the

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price at which oil was offered in the first days of the year. Conflicting reports on the yield of seed were heard during the harvest period, but private information was generally credited as being more accurate than the official estimates, and the feeling was nearly general that the outturn here and in Canada was smaller than in 1914. Ocean freights from the Argentine were gradually climbing, and prices for seed advanced, due to this combination. Oil moved up in sympathy with seed. The movement of seed from country points was slow, and late in the fall all hopes of a yield anywhere near the total estimated by the government were abandoned and speculative buying carried seed prices up, and oil was held at the high level of the year in November. The revised official estimates in December came nearer the totals as given in the majority of private reports, and this added to bullish sentiment and induced greater speculative buying of seed. Scarcity of vessels to transport seed from the Argentine also was a factor late in the year and helped to put oil prices up. Closing quotations for oil showed 65c. per gallon as the inside figure, and this was very close to the top price for the year, with a net advance of 17c. per gallon over the opening price in January.

Official estimates on the domestic crop of flaxseed, as reported monthly, compare as follsw:—

	Acreage.	Condition. Per cent.	Yield per acre. Bush.	Total yield. Bushels.
July 1	1,881,000	88.5	8.7	16,000,000
Aug. 1	1,881,000	91.2	9.5	18,000,000
Sept. 1	1,881,000	87.6	9.7	18,000,000
Oct. 1	1,881,000	84.5	9.4	17,655,000
Nov. 1	1,881,000	...	9.8	18,446,000
Dec. 1	1,367,000	...	10.1	13,845,000

Cake prices during the year were rather hard to fix definitely, as sellers did business mainly on a basis of delivery at foreign markets. Hence the question of ocean freights was important, and as some sellers engaged cargo room on more favorable terms than others the net returns on cake varied according to seller. Some sales were reported for export, where the price figured out around $44 per ton at New York, but at other times sales were effected on a basis of $22 per ton.

The following table shows the prices at which car lots were quoted on spot in the New York market on each Saturday of the year, together with comparisons:—

	1915.	1914.	1913.
January 3	$0.48	$0.48	$0.43
January 9	.53	.49	.44
January 16	.59	.49	.45
January 23	.59	.49	.46
January 30	.57	.48	.47
February 6	.56	.48	.48
February 13	.56	.49	.48
February 20	.55	.50	.47
February 27	.54	.50	.45
March 6	.55	.50	.44
March 13	.58	.51	.44
March 20	.60	.51	.44
March 27	.59	.51	.44
April 3	.58	.51	.44
April 10	.59	.51	.44
April 17	.60	.50	.45
April 24	.61	.50	.47½
May 1	.62	.50	.46
May 8	.65	.50	.45
May 15	.65	.49½	.46
May 22	.65	.49½	.45
May 29	.64	.49½	.45
June 5	.63	.50	.45
June 12	.61	.50	.45
June 19	.57	.51	.45
June 26	.57	.51	.46
July 3	.54	.51½	.47
July 10	.54	.51½	.47
July 17	.53	.53	.48
July 24	.52	.57	.49
July 31	.51	.59	.49
August 7	.50	.58	.49
August 14	.50	.58	.52
August 21	.50	.59	.51
August 28	.52	.58	.50
September 4	.52	.57	.50
September 11	.51	.56	.50
September 18	.51	.55	.48
September 25	.55	.51	.47
October 2	.55	.49	.47
October 9	.56	.46	.47
October 16	.58	.45	.46
October 23	.58	.44	.46
October 30	.58	.44	.46
November 6	.60	.44	.45
November 13	.64	.46	.45
November 20	.65	.46	.46
November 27	.61	.46	.48
December 4	.61	.45	.48
December 11	.61	.45	.49
December 18	.61	.48	.48
December 25	.64	.48	.49

The following table gives the high and low price quoted for oil on spot in the New York market, together with comparisons:—

	1912. H.	1912. L.	1913. H.	1913. L.	1914. H.	1914. L.	1915. H.	1915. L.
Jan.	75	72	47	42	49	48	59	48
Feb.	72	62	49	45	50	48	56	54
Mar.	71	68	45	43	51	50	60	55
April	73	73	48	42	51	50	61	58
May	76	73	46	44	50	49½	65	62
June	77	76	46	44	51	50	63	57
July	77	67	49	46	57	51½	54	52
Aug.	68	64	52	48	59	58	52	50
Sept.	66	64	50	47	57	51	55	51
Oct.	64	54	47	45	49	44	58	55
Nov.	54	45	48	45	46	44	64	60
Dec.	45	42	49	47	48	45	64	61
Year	77	42	50	42	59	48	66	48

The following figures show the import and export trade in linseed oil for the 1914-15 crop year:—

IMPORTS OF LINSEED OIL DURING 1914-1915 CROP YEAR.

	Gallons.	Value.
September	81,722	$34,139
October	128,650	57,049
November	16,647	7,578
December	100,003	51,210
January	14,423	7,717
February	22,538	11,644
March	3,812	2,186
April	4,241	2,711
May	7,274	4,361
June	3,614	2,395
July	63	36
August	11,629	8,233
	394,616	$189,259

EXPORTS OF LINSEED OIL DURING 1914-1915 CROP YEAR.

	Gallons.	Value.
September	20,288	$12,263
October	21,849	12,287
November	66,666	38,731
December	17,033	9,365
January	25,225	13,657
February	896,196	473,043
March	37,959	21,901
April	39,222	23,693
May	22,659	13,915
June	35,176	20,944
July	35,263	19,808
August	42,655	25,142
	1,259,727	$682,729

Imports of flaxseed for the crop year, from September 1, 1914, to August 31, 1915, were as follows:—

	Bushels.	Value.
September	1,118,040	$1,500,870
October	1,240,780	1,636,411
November	543,423	697,261
December	618,610	748,733
January	418,355	530,710
February	764,454	1,008,800
March	701,732	929,319
April	458,936	519,564
May	1,630,159	1,758,894
June	1,769,576	2,094,456
July	1,809,031	2,337,272
August	1,497,609	1,788,486
	12,570,725	$15,450,776

Exports of flaxseed for crop year, from September 1, 1914, to August 31, 1915:—

	Bushels.	Value.
September	11	$33
October	66	66
November	12	36
December	37	115
January	219	716
February	1,028	2,929
March	376	835
April	674	1,462
May	988	1,909
June	.....	.....
July	359	733
August	271	536
	3,994	$7,370

LONDON LINSEED OIL AND CAKE MARKET.

Linseed oil in 1915 rose appreciably in January to April, receded then more or less steadily to October, when a recovery set in which was most markedly developed in December. The course of prices is shown in the following table, the figures being the quotation ruling at about the end of the first week each month; corresponding quotations for 1914 are added for comparison:—

LINSEED OIL, SPOT, PIPES, LONDON.

	£. s. d. 1915. Ton.	£. s. d. 1914. Ton.
January	25 5 0	25 0 0
February	28 0 0	23 15 0
March	30 0 0	24 15 0
April	35 10 0	25 15 0
May	31 10 0	24 5 0
June	29 2 6	25 2 6
July	26 7 6	24 17 6
August	25 5 0	25 15 0
September	25 10 0	26 0 0
October	27 10 0	25 0 0
November	31 15 0	22 10 0
December	33 0 0	22 15 0
Close of year	31 5 0	23 7 6

Linseed cake last year was an advancing market in January to March, losing a little in April and May, but consistently gaining in value thereafter. The general trend is shown in the following, quotations again being taken at about the first week in each month, and 1914 added for comparison:—

LINSEED CAKE, LONDON-MADE, SPOT.

	1915. £. s. d.	1915. £. s. d.	1914. £. s. d.	1914. £. s. d.
Jan.	9 17 6	@10 0 0	7 10 0	@ 7 15 0
Feb.	11 0 0	@11 2 6	7 7 6	@ 7 12 6
March	11 0 0	@11 5 0	7 7 6	@ 7 12 6
April	10 0 0	@10 2 6	7 10 0	@ 7 12 6
May	9 12 6	@ 9 15 0	7 10 0	@ 7 15 0
June	10 2 6	@10 15 0	7 10 0	@ 7 12 6
July	10 10 0	@10 12 6	9 15 0	@ 8 0 0
Aug.	11 10 0	@11 12 6	9 5 0	@ 9 10 0
Sept.	11 12 6	@11 15 0	8 17 6	@ 9 0 0
Oct.	11 12 6	@11 15 0	8 12 6	@ 8 17 6
Nov.	11 17 6	@12 0 0	8 10 0	@ 8 15 0
Dec.	12 0 0	@12 2 6	8 17 6	@ 9 0 0
Close of year	12 12 6	@12 15 0	9 12 6	@ 9 15 0

In analyzing the situation on March 1, it was apparent that enormous quantities of contract oil were held by speculators, while the sales were made by refiners. In other words, speculators held the contracts, and refiners held the actual oil. The month of March witnessed an entire change in market conditions. Consumers did not come in for the March deliveries, and large quantities of oil were sold in the open market, while switching operations were extremely heavy by the persistent bulls, who would not assume paper losses, and maintained their position on the long side of May. Meanwhile a level of 6½c. per pound for spot oil had been reached late in March, and crude oil had declined from 42½c. a gallon to 40½c. Mills at this time seemed rather discouraged with the relatively low prices of crude oil, and refused to buy seed, although considerable quantities were said to be obtainable at various points in the South.

During the first quarter of the year the lard market had weakened under heavy production, and this was one of the chief factors in restricting the demand for oil for consuming purposes at this time. April proved to be a comparatively steady month, and 6½@ 6⅝c. could be obtained for spot oil during the entire length of the shipment or until April 27. This gave the bulls new hope, and they contended that the consuming demand must increase at the prevailing attractive basis. Enormous deliveries of actual oil early in May proved that this theory was erroneous, and the long interest again switched the bulk of its heavy holdings into July. Meanwhile, spot oil had settled to 6¼c. per pound, and it looked as though the prospects for any bullish operations were decidedly unfavorable. Crude oil sold at 38½c. a gallon during the last week of May.

Many holders of July contracts became disgusted with the advent of the summer season, and the market was subjected to one of the greatest periods of liquidation during the month of June ever recorded. Spot oil became a drug on the market, and cotton oil in general became a commercial football with scarcely any friends in the professional trade. Consumers were willing to take oil, but they made low offers, and holders were at buyers' mercy. By the end of June spot oil had reached 5.95c. a gallon, and there was no indication that the bottom was in sight. Leading authorities stated that the season's production would reach 4,200,000 barrels of refined oil, or the greatest output on record. At this time it looked as though an enormous amount of oil would have to be carried over into the new crop season, and the bearish element flushed with success pounded the market with all the power at its command. In the meantime, the lard market had become demoralized by restricted export shipments and increasing supplies at Chicago. City lard on July 1 had reached 7¾c. per pound, while compound lard was offered at 7c. per pound in car lots without takers.

The September option came in for its share of liquidation during the month of July, and the whole future list was feverish, regardless of rumors of a greatly reduced new cotton acreage, and an enormous curtailment of the use of fertilizer. Spot oil did not change much at this time, but in August, the low point of the year was reached when the market touched 5.30c. Late in August the turn came. Soapmakers entered the market on a heavy scale, and one of the greatest bear campaigns in cottonseed oil came to a close. By the end of August prices of spot oil were carried upward to 5¾c., while lard recovered from its low point of 7¼c. a pound to 8c. During September further recoveries were made under heavy purchases for the soap kettle. The soap industry was able to extract glycerine and sell it for export at abnormally high figures, and the constant advance in oil values inspired a renewal of speculative buying interest which gained in momentum as the season advanced. Little was said of the carry over stocks at the beginning of the new crop season as the tide had turned, and factors of a bearish nature were entirely ignored. Estimates placed the old stocks of oil on September 1st at quantities ranging from 250,000 barrels to 700,000 barrels. It is conceded, however, that no matter what the carry over was, there was no bearish reflection on the market, and it is presumed that any carry over at all was doubly discounted by the summer's decline.

From September forward the advance was steady. By October the tone had become buoyant, and crude oil had recovered from its low point of 36½c. a gallon to 52c. Incidentally, lard had worked up to 10c. per pound, but dropped almost immediately back to 9c. without causing more than a temporary ripple in oil values. The best price for spot oil was recorded in November, when sales were reported at 8⅜c. per pound. December found the tone a little easier, but the tendency was upward, and the close was strong, with sentiment very bullish.

For comparative purposes the appended table will show the high and low prices of spot refined oil, per pound, and immediate shipments of prime crude oil, per gallon, during the last four years. Prices are based on closing quotations each successive week:—

Prime Summer Yellow on Spot.

	1915. H.	1915. L.	1914. H.	1914. L.	1913. H.	1913. L.	1912. H.	1912. L.
Jan.	6⅜	5⅜	7⅛	6⅜	6¼	6¼	5.50	5.30
Feb.	7.10	6.85	7.25	7.05	6.30	6.25	5⅝	5½
March	6.70	6.50	7⅝	7¼	6.50	6.30	5⅝	5½
April	6⅜	6⅜	7⅜	7⅜	7½	6¾	7	5⅞
May	6⅜	6⅛	7.35	7.00	7¼	6⅞	7¼	7
June	6⅜	5.95	7⅜	7⅛	8⅜	7½	6⅞	6⅜
July	6	6	7⅛	6⅞	9⅜	8½	6¾	6.40
August	5⅞	5.30	6¾	6⅜	9⅜	8½	6.50	6.23
Sept.	6⅜	5.98	6¾	5⅝	8½	7⅛	6.50	6.19
Oct.	7.00	6.91	5½	4.85	7.20	6.90	6.50	5.75
Nov.	8⅜	7⅞	6⅛	5.00	7.15	7.00	6.20	5.75
Dec.	8.32	8.32	6	5⅝	7.05	6.70	6¼	6¼
Year	8⅜	5.30	7⅜	4.85	9⅜	6⅛	7.50	5.30

Prime Crude Oil for Immediate Shipment in the Southeast.

	1915. H.	1915. L.	1914. H.	1914. L.	1913. H.	1913. L.	1912. H.	1912. L.
Jan.	43	36½	45	41½	38½	37	33½	31½
Feb.	45½	42	45½	44½	40	38¼	35	33½
March	42½	40½	47½	45	41	38½	35	33½
April	42	39½	48½	47	45	41	42	38
May	42	39½	47½	45½	45½	42½	48	44
June	39½	38½	47½	46½	47	45½	44	42½
July	*	*	47	47	55	50	43	39
Aug.	*	*	41	38	61	55	40	39
Sept.	41	36	41	35	51	44	38	36
Oct.	52	44	34½	29	44½	42	36½	35½
Nov.	55	49½	37	29	45½	45	40	36½
Dec.	55	54	37½	36	42½	40½	41½	38
Year	55	36½	48½	29	61	37	48	31½

Above prices represent the gallon basis.

* Nominal.

HIGH AND LOW SPOT PRICES IN THE NEW YORK MARKET FOR CITY LARD, LARD COMPOUND AND OLEO STEARINE FOR EACH MONTH DURING THE YEAR 1914 AND 1915.

Lard.

	1914 High.	1914 Low.	1915 High.	1915 Low.
January	11	10¾	10⅝	10½
February	10¾	10⅝	10⅝	10½
March	10½	10⅜	10⅛	9⅞
April	10⅜	10	9½	9⅜
May	9⅞	9½	9½	9⅛
June	9⅝	9¾	9⅛	8
July	10	9⅜	7¾	7¼
August	10⅛	9⅛	7⅝	7⅛
September	10⅛	9⅜	8⅛	8
October	10⅜	9⅝	10	8⅜
November	11½	10	9⅝	8¾
December	10½	9⅜	9¾	9⅜
Year	11½	9½	10⅜	7¼

Lard Compound.

	1914 High.	1914 Low.	1915 High.	1915 Low.
January	8⅝	8¼	7½	7⅜
February	8⅝	8¼	7¾	7⅜
March	8⅝	8¼	7¾	7⅜
April	8⅝	8⅜	7⅞	7½
May	8¾	8⅛	7⅞	7½
June	8½	8¼	7½	7⅛
July	8⅝	8⅜	7⅛	7
August	8½	8¼	7	7
September	8⅝	8⅛	7⅜	7
October	7¾	7	9⅜	8¼
November	7½	6⅞	10⅜	9½
December	7½	7¼	9⅞	9½
Year	8⅝	6⅞	10⅜	7

Oleo Stearine.

	1914 High.	1914 Low.	1915 High.	1915 Low.
January	9¼	8¾	10	10
February	9⅜	9	10	10
March	8⅝	8¾	10	8½
April	8⅝	8¾	9¼	8½
May	8⅝	8½	9¼	8⅝
June	8	8	9⅛	8¼
July	7¾	7½	8¾	8
August	10	8	10	9
September	11½	9¾	9⅝	9⅛
October	11½	9¾	10½	9¼
November	11½	9	11	10½
December	11	10	10½	9¾
Year	11½	7½	11	8

ROTTERDAM MARKET FOR COTTON OIL.

Through the geographical situation of our country flanked as it is by belligerent powers the Dutch oil and fat trade and industry naturally had to suffer from the influences of the war, although it must be admitted that, in consequence of the great requirements on the part of the armies, etc., for all sorts of edible fats and oils, the high prices for dairy butter, due to limited imports from Serbia and much smaller arrivals from Australia—which caused prices for Danish butter to run up to 170 kronin at Copenhagen and for first-class Dutch butter to 216s. in London—there was a permanent and very lively demand for edible fats of all kinds, especially for margarine.

Although commerce in this country had to contend with many and constantly increasing difficulties, such as the high ocean freights, scarcity of tonnage and very irregular arrivals, shipments being frequently stopped and detained by the English authorities, difficult cable intercourse with the United States, to say nothing of the restricting prescriptions for the import of our raw materials and the export of our manufactured products, the year 1915 may not be counted among the worst ones.

Prices for the different raw materials ruled high, at times exceedingly high. Only when in August very severe rules for the export were decreed the market collapsed; however, only to recover quickly later on, especially so in October.

As already mentioned, demand for all kinds of oils and fats was a very lively one, which to a certain extent must be attributed to the great influx of fugitives from Belgium, interneted belligerents, etc., into our country.

For prize summer yellow quotations in New York went up from 5.27c. to 8½c.; crude oil from about 30c. in August to above 55@56c. per gallon.

In the Rotterdam market prices for prime summer yellow for home consumption (N. O. T. conditions) fluctuated between 43@44 florins and 57½ florins, closing at the end of the year at 55 florins, and for choice butter oil spot at 65 florins.

For spot lots with export licenses up to 80 florins was paid.

The total export figures of casing oil from the United States for the last two seasons compare as follows:—

	Barrels.
1914-15	882,617
1913-14	475,318

Cottonseed Oil, Cake and Meal

NEW YORK COTTONSEED OIL

The year 1915 opened under very uncertain conditions. The European conflict having started late in the summer of 1914, our export trade prospects were very much upset, and there was no similar condition in the history of cottonseed oil on which to gauge home consumption. At the beginning of the year consuming demand was poor, but there was a feeling of confidence in the South, and enough speculative orders were poured into the market to force prices upward to the extent of 100 points in January. This established the spot market at 6.75c per pound by the end of the month. In February holders were encouraged by an increase in demand for foreign account, but shipments were restricted by the scarcity of ocean tonnage. The South and West continued to buy, however, and trading became active, the market reaching 7.10c. per pound by February 15. The failure of domestic consumers to buy liberally at this time probably frustrated the plans of the interests working for higher prices because an attempt to liquidate even in a small way found the market's absorbing power very much limited. By the end of February spot prices had declined from the high point to 6.85c. per pound.

The Union Sulphur Company

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Average Analysis:

Sulphur - - - About 99½ per cent.
Organic Matter - About ½ per cent.

Absolutely free from Arsenic or Selenium

Mines: Calcasieu Parish, Louisiana

Offices: 17 Battery Place, New York

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As of Special Interest Under Present Conditions

Hydroquinone	Hexa Methylene Tetramine
Atropine Sulphate	Pilocarpine Muriate
Belladonna Leaves	Hydrastine (White Alkaloid)
Aniline Oil	Senna Leaves
Nitrobenzole	Cut Althea Root
Chamomile Flowers	Potash Iodide
Linden Flowers	Po. Carbonate Magnesia U.S.P.

LONDON COTTONSEED OIL AND CAKE MARKET.

The general movement of the cotton oil market in London may be indicated by the following record for pipes of crude and refined pale on spot, the figures being taken at about the close of the first week in each month:—

COTTON OIL, LONDON SPOT.

	Crude, ton.	Ref. pale, ton.
	£. s. d.	£. s. d.
January	28 10 0	30 10 0
February	26 15 0	29 5 0
March	27 5 0	29 10 0
April	29 5 0	31 10 0
May	31 10 0	33 10 0
June	30 10 0	32 15 0
July	29 0 0	31 5 0
August	28 15 0	31 0 0
September	26 15 0	30 0 0
October	29 10 0	21 10 0
November	31 10 0	33 10 0
December	35 5 0	36 10 0
Close of year	42 0 0	47 0 0

In cottonseed cake values of best English made and ditto Egyptian at about the close of the first week in each month have been as follows:—

COTTONSEED CAKE, LONDON SPOT.

	Best English make. £. s. d. £. s. d.	Best Egyptian. £. s. d. £. s. d.
Jan.	6 0 0@ 6 2 6	5 17 6@—
Feb.	6 10 0@ 6 12 6	6 5 0@ 6 7 6
March	6 12 6@ 6 15 0	6 10 0@ 6 12 6
April	6 7 6@ 6 10 0	6 2 6@ 6 5 0
May	6 7 6@ 6 10 0	6 2 6@ 6 5 0
June	6 15 0@ 6 17 6	6 12 6@ 6 15 0
July	6 12 6@ 6 15 0	6 11 3@ 6 13 9
Aug.	7 10 0@ 7 12 0	6 17 6@ 7 0 0
Sept.	7 17 6@ 8 0 0	7 15 0@ 7 17 0
Oct.	8 12 6@ 8 15 0	8 0 0@ 8 2 6
Nov.	9 0 0@ 9 2 6	8 10 0@ 8 15 0
Dec.	9 7 6@ 9 10 0	8 15 0@ 9 0 0
Close of year	9 17 6@10 0 0	9 10 0@ 9 15 0

Other Vegetable Oils

NEW YORK MARKETS.

Coconut Oil.

The coconut oil industry, taken as a whole, enjoyed a prosperous year. Prices were high and consumption was about normal, notwithstanding the fact that the central powers in Europe were unable to obtain any supplies. Consumption was especially heavy in England, where this oil found a ready market for the manufacture of margarine. The production of coconut oil by American interests was more of a factor. The output of the Philippine mills was heavy, and the establishments on the Pacific coat and in the Eastern States were larger producers, thereby relieving the situation materially on several occasions. The bulk of the oil imported into the United States was consumed by the soap-makers, but there was a substantial increase in the output of butter substitutes or margarine made from this material. Prices were very unsettled throughout the year, due chiefly to the shipping situation. Speculative activity was curbed abroad, and the market was mostly on a basis of supply and demand. Ceylon coconut oil opened the year at 10¾@11c. per pound. The market ruled firm around this level until in May when offers under 10c. were made. Trading during the summer was moderate in volume and prices developed weakness, the low point of 8⅜c. per pound obtaining in August. For a time Eastern makers of coconut oil were unable to receive their regular supplies of copra, due to the closing of the Panama Canal. This lessened competition and, with Pacific coast and Philippine mills well sold up, prices strengthened in all quarters. In November the market again touched 10c., and the advance was continued up to the close when prices ranged from 13½c. to 13¾c. per pound, the high point for the year. Quotations for Philippine and domestic oil were practically on a parity with the imported stock, with nearly all of this business done on a tank-car basis. Cochin oil opened the year at 14@15c., declined to 10c. in August, and closed firm at 14¾@15½c. per pound.

The following table gives the high and low price, for each month, from January, 1913, to December, 1915, on Ceylon coconut oil, the figures being based on the closing spot quotation of each successive week:—

	1913. H.	1913. L.	1914. H.	1914. L.	1915. H.	1915. L.
January	9¾	9¼	10½	10⅛	11	10¾
February	10¼	10	10⅛	10	11	11
March	10¼	10	9¾	9½	11	10⅝
April	10½	10¼	9⅝	9½	10⅝	10½
May	10	10	9½	9¼	10¼	9½
June	11	10¼	9½	9	9½	8¾
July	11¼	10⅝	9½	9	9	8⅝
August	11¼	11	13½	9	8¾	8⅜
September	11¼	11	14	13	9¼	9
October	10⅜	10⅛	12½	10½	9⅝	9¼
November	10⅝	10½	11½	10½	11⅜	10
December	10⅝	10½	11	10⅜	13¾	12
Year	11¼	9¼	14	9	13¾	8⅜

Following are the high and low spot prices for Cochin coconut oil, by months, for 1914 and 1915:—

	1914. H.	1914. L.	1915. H.	1915. L.
January	12½	11	15	14
February	10⅞	10¾	14½	14½
March	10¾	10⅝	14½	14
April	10½	10⅜	13½	11½
May	10¾	10⅜	11½	10½
June	10¾	10½	10½	10¼
July	11	10½	10½	10¼
August	15	10½	10¼	10
September	16	15	10½	10¼
October	15	13½	11½	10½
November	14	13½	14	11
December	15	14½	15½	14¾

Corn Oil.

Production of corn oil in 1915 showed a moderate increase, being estimated at 225,000 barrels, but this was more than offset by the gain in consumption of this commodity. The output of refined corn oil was greatly increased, there being a steady demand for this material, especially for export. Prices for both crude and refined oil moved within a narrow range, with the tone of the market during the greater part of the year very firm, in sympathy with cottonseed oil. Crude oil opened the year with leading producers asking 5.70c. per pound. Prices advanced to 6.50c. per pound by May, but eased off again, selling down to 5.56c. during July and August. Prices recovered sharply during the last quarter of the year, reflecting the upward movement in competing oils. At the close leading operators held out for 7.85c., the highest point in the year. Refined corn oil opened the year at 6.65c., sold down to 6.05c. during the summer, but closed strong at 8.45c. per pound.

The following table gives the high and low price of crude corn oil, by months, during 1913, 1914 and 1915:—

	1913. H.	1913. L.	1914. H.	1914. L.	1915. H.	1915. L.
January	6.65	5.55	6.65	6.45	5.80	5.70
February	5.80	5.55	6.55	6.45	6.25	5.80
March	5.65	5.50	6.55	6.45	6.26	6.25
April	5.80	5.80	6.55	6.45	6.26	6.26
May	5.80	5.60	6.55	6.35	6.50	6.25
June	5.80	5.70	6.45	6.25	6.26	6.01
July	6.50	6.05	6.45	6.35	5.86	5.56
August	6.65	6.50	6.35	5.95	5.65	5.50
September	6.50	6.50	6.05	5.95	6.45	5.65
October	6.50	6.25	5.60	5.35	7.75	6.45
November	6.60	6.35	5.60	5.35	7.75	7.50
December	6.80	6.55	5.70	5.60	7.85	7.75
Year	6.80	5.55	6.65	5.35	7.85	5.56

The following tabulation shows the high and low price of refined corn oil during each month of 1915:—

	High.	Low.
January	6.75	6.55
February	7.25	6.75
March	7.25	7.25
April	7.25	7.25
May	7.50	7.25
June	7.00	6.75
July	6.35	5.95
August	6.15	6.05
September	7.15	6.15
October	8.25	7.15
November	8.25	8.00
December	8.45	8.25
Year	8.45	5.95

Olive Oil.

Despite the unusual conditions which prevailed at most producing centers of Southern Europe the market for denatured olive oil held on a fairly even basis throughout the year. Prices were higher than before the war, owing to the active demand for this material from European consumers. Importations into the United States were about normal in volume. The year opened with denatured olive oil quoted at 92@95c. per gallon. Prices eased off on quiet trading, and during the summer months dealers were asking from 82c. to 85c. per gallon. In sympathy with all other vegetable oils prices hardened towards the close of the year, and prices advanced to a basis of 90@93c. per gallon, according to acidity. Prime green foots were firm, but price fluctuations were unimportant. In January holders were asking from 8¾c. per pound to 9¼c. per pound for prime stock. Prices eased off, and in the summer months business went through as low as 7¾c. per pound. During the second half of the year prices strengthened materially, sending the market to a 9¼c. level, at which price business went through up to the close of the year.

The subjoined table gives the high and low prices for each month, from January 1, 1913, to December 31, 1915, with the average price for each year on denatured yellow olive oil, the figures being based on the closing quotations of each successive week:—

	1913. H.	1913. L.	1914. H.	1914. L.	1915. H.	1915. L.
January	92	88	85	82	95	90
February	92	88	86	84	88	82
March	92	88	86	86	90	88
April	90	87	86	85	90	90
May	87	85	85	82	92	90
June	85	85	83	82	90	86
July	85	85	82	78	86	84
August	85	83	1.10	78	85	82
September	85	83	1.05	1.00	85	85
October	83	82	1.00	95	88	85
November	83	83	95	95	90	88
December	93	93	95	90	92	90
Year	93	82	1.10	78	95	82

Following are the high and low prices for prime olive oil foots, by months, for 1914 and 1915:—

	1914. H.	1914. L.	1915. H.	1915. L.
January	7¾	7⅝	9½	8¾
February	7¾	7½	8	7¾
March	7⅞	7⅝	8¼	8⅛
April	7⅞	7½	8⅜	8⅛
May	7½	7½	9	8⅛
June	7¼	7¼	9	8½
July	7¼	7	8½	7¾
August	11	7	8	7¾
September	11	10	8	8
October	10	9⅝	8⅜	8
November	9½	9¼	9	8
December	9½	9	9½	9¼

Palm Kernel Oil.

Owing to the war America had to look to England for supplies of this material. As production of palm kernel oil on a large scale is a new industry in England, having formerly been controlled by German interests, the offerings of oil over the first half of the year were light, and importations into the United States were so small as to hardly establish a market. However, production in England increased materially during the second half of 1915, and American importers again were in a position to receive supplies of palm kernel oil. Prices fluctuated sharply, following the course of coconut oil. The year opened with spot oil quoted at 11½@12c. per pound. Prices ruled around this level until June, when freer offerings from abroad brought out sellers under 10c. per pound. The low point for the year was 8¾c. per pound, which obtained in September and October. Prices strengthened during the last quarter of the year, reflecting the general uplift in vegetable oils, and at the close prices ranged from 11c. to 11½c. per pound.

The following table gives the high and low spot quotations for palm kernel oil, by months, during the past three years:—

	1913. H.	1913. L.	1914 H.	1914 L.	1915. H.	1915. L.
January	9¼	8⅞	10½	10¼	12	11½
February	9½	9¾	10¼	10	12	12
March	9½	9⅝	9¾	9⅝	12	11¾
April	10¼	9⅞	9⅝	9½	12	11½
May	10	10	9⅝	11½	11½	10
June	10¼	10	9¼	8¾	10	9¾
July	10¾	10¼	8¾	8¾	9¼	9
August	11	10¾	13½	8¾	9¼	8⅞
September	10⅜	10½	13	12	8⅞	8¾
October	10⅜	10½	12½	11½	9¼	8⅝
November	10½	10⅜	11½	10⅜	10¼	9¼
December	10½	10½	12	11½	11½	11
Year	11	8⅞	13½	8⅝	12	8⅝

Palm Oil.

Price fluctuations in the market for palm oil were violent during the year, due chiefly to the delay in obtaining shipments. Consumption of palm oils in the United States showed a slight reduction, compared with 1914, but there was a moderate increase in the demand for this commodity throughout the United Kingdom, being used to some extent by margarine manufacturers. Imports into Liverpool during the year amounted to 60,332 tons, against 61,011 tons in 1914. Exports on the other hand amounted to approximately 40,000 tons, which compares with 44,000 tons for the preceding year. At various times during the year freight room from Africa was almost unobtainable, which was reflected by the sharp price movements. The year opened with Lagos palm oil quoted on the spot in New York at 7½c. per pound. Prices rose steadily until March when 12½c. was actually paid for moderate sized parcels of spot oil. From this point quotations went off, the low price for the year obtaining in September, when there were offers at 6½c. per pound. During the last quarter of 1914 there was a general uplift in all oils, fats and greases, especially abroad, and prices developed considerable strength. In December holders here were asking up to 9c. per pound for Lagos oil. Prime red oil opened the year at 6¾c. per pound, advanced to 11½c. in March, declined to 6⅜c. during the month of September, but recovered to 8½c. by the close of the year. A feature was the arrival of several cargoes of palm oil direct from Africa, this being the first time in the history of the trade that such shipments were possible. It is a curious fact that when prices were at the low point for the year very little business went through for account of American consumers.

Liverpool palm oil statistics for the past three years follow:—

	1915. Tons.	1914. Tons.	1913. Tons.
Stock Dec. 31	10,043	3,507	3,261
Imports—			
During December	4,091	6,097	6,635
Jan. 1 to Dec. 31	60,332	62,011	72,146
Deliveries—			
During December	5,343	7,179	6,959
Jan 1 to Dec. 31	53,796	61,765	73,894
Exports—			
Jan. 1 to Nov. 1	37,396	42,507	44,057

The following table gives the high and low for Lagos palm oil in the New York market during 1913, 1914 and 1915:—

	1913 L.	1913 H.	1914 L.	1914 H.	1915. L.	1915. H.
January	7	7¼	7⅝	7¾	8	7¼
February	7¼	7½	7¾	7¾	11½	9½
March	7½	7½	7⅞	7¾	12½	11½
April	7¼	7½	7½	7⅝	11½	10½
May	7	7¼	7¼	7½	10½	8
June	7	7¼	7⅛	7¼	8	6¾
July	7	7½	7	7	7	6¾
August	7½	7¾	7	12	7¼	6⅞
September	7¾	7¾	10½	11½	6¾	6½
October	7⅝	7¾	8½	9	7¼	6¾
November	7⅝	7⅝	8	8½	8½	7½
December	7½	7⅝	7¼	7¾	9	8½

The following table shows the high and low price of prime red palm oil for each month in 1915. The quotatios are based upon the closing price of each successive week:—

	H.	L.
January	7	6¾
February	11	8½
March	11½	11¾
April	11¼	10
May	10	7¾
June	7¾	6½
July	6¾	6⅜
August	6¾	6½
September	6½	6⅜
October	7	6½
November	8	7
December	8½	8
Year	11½	6⅜

Peanut Oil.

Importations of peanut oil during the year showed a moderate reduction compared with 1914. So far as trading in the soap grades was concerned business was inactive, being restricted by the relatively high prices obtaining. During the summer months very low prices obtained for competing oils, especially cottonseed oil, and the soap-makers showed no interest in this material. The cottonseed crushing industry was hard hit by the cheapness of vegetable oils, and several mills in the country became interested in establishing a peanut oil industry in the South. Several mills did install peanut crushing machinery, but up to the close of the year actual domestic production was insignificant. Prices for imported peanut oil (soap grade) ranged from 65c. to 70c. per gallon, spot delivery.

The following table gives the high and low price of average quality soap-maker's peanut oil for each month of 1915:—

	H.	L.
January	70	68
February	68	65
March	68	65
April	66	65
May	66	65
June	70	66
July	65	65
August	65	65
September	66	66
October	68	66
November	66	66
December	68	66

Rapeseed Oil.

Prices for rapeseed oil during the year were abnormally high. There was a good demand from manufacturers of lubricants, and importations were fully up to normal, notwithstanding the record prices which prevailed, especially toward the close of the year. Shipments of rapeseed from India were restricted for lack of freight room, and in addition to this the English mills were handicapped by insufficient labor, which, combined, developed a very strong situation. The year opened with English refined rapeseed oil quoted at 70@71c. per gallon. The market advanced to 85c. during March, but on freer offerings the prices developed weakness, until in July there were sellers around 75c. per gallon. The shipping situation was very bad throughout the second half of the year, and, under an urgent demand for oil, prices advanced sharply, closing the year at 94@95c. per gallon, the high point for the entire period. During 1915 English mills imported about 78,000 tons of rapeseed, which compares with 169,000 tons in 1914 and 227,000 tons in 1913.

Following are the high and low prices for English refined rapeseed oil, by months, for 1914 and 1915:—

	1914 H.	1914 L.	1915 H.	1915 L.
January	62	59	71	70
February	59	59	84	72
March	59	59	85	84
April	59	59	85	82
May	59	59	83	81
June	59	59	83	77
July	59	59	76	75
August	85	59	76	76
September	85	75	77	76
October	75	72	82	77
November	72	70	86	83
December	71½	71	95	90

Soya Bean Oil.

The feature during the year was the active buying of the oil by the soap-makers. This buying set in during the last quarter, when prices for most vegetable oils advanced sharply. The tendency of prices was steadily upward. In former years soya bean oil figured chiefly as a substitute for linseed oil, but as prices for the latter have been rather low, very little soya was consumed by the paint trade. Toward the close of the year soya bean oil was purchased freely as a substitute for cottonseed oil. Production was about normal, the crop of beans amounting to approximately 1,250,000 tons. The year opened with the market at 5¼@5¾c. per pound, as to style of container, and by the middle of May prices held around 6½c. A quiet period set in during the summer months and business went through as low as 5¾c. per pound. From this point on the market developed considerable strength, and toward the close of December leading sellers refused to shade 7½@7¾c. per pound, the latter figure being the high price for the year.

Following are the high and low prices for soya bean oil (in barrels) which obtained in the New York market during each month for the past three years:—

	1913 H.	1913 L.	1914 H.	1914 L.	1915 H.	1915 L.
January	6¼	5¾	6⅜	6¼	5¾	5¼
February	6	5⅝	6½	6⅜	6¼	5¾
March	5⅞	5⅝	6¾	6⅜	6⅜	6¼
April	5¾	5⅝	6⅜	6⅜	6⅜	6⅜
May	6	5⅞	6⅜	6⅜	6½	6¼
June	6¼	6	6¼	6¼	6¼	6¼
July	6½	6⅜	6¼	6¼	6⅜	6
August	6½	6¾	7	6¼	6	5¾
September	6½	6⅜	6⅜	6½	6	5⅝
October	6⅝	6⅜	6½	6¼	7	6
November	6⅜	6⅜	6¼	5¼	7⅜	7
December	6⅜	6⅜	5¼	5¼	7¾	7¼
Year	6½	5⅝	7	5½	7⅜	5¼

China Wood Oil.

The wood oil market was not subjected to unusual conditions in the first part of the year and prices held at fairly steady levels. Primary markets had recovered from the slump which followed when some of the chief consuming markets of Europe were cut off and selling pressure was no longer a factor. The shipping situation became more and more of a factor as the year wore on, and in the last two months of the year the market became excited by reports that stocks were prevented from coming to shipping points and this caused advances at Hankow and Shanghai. This came at a time when stocks in this country were small, and to add to the strength thus given, it was found difficult to engage ship-

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ping room from China and any available space was at high figures. The result was that prices went to 9@9½c. per pound in the local market and the year closed with expectations of a short supply for the early part of 1916.

SPOT PRICES FOR CHINA WOOD OIL.

	1915.	1914.
January	6¼@6½	6¾@7
February	6¼@6⅜	6¾@7
March	6¼@7	6⅞@7
April	6¼@6¾	6½@6¾
May	6½@6¾	6⅜@6¾
June	7 @7½	6¼@6⅜
July	6⅜@7¼	6¼@6⅜
August	6¾@7¼	9 @10
September	6⅜@7½	8½@10
October	6⅜@7½	7½@8½
November	7 @8¼	6¾@7
December	8¼@9½	6¾@7

SOYA BEANS AND OIL IN HULL, ENGLAND.

British crushers received a much larger quantity of soya beans in 1915 than in the preceding years. Thus at Hull, the chief crushing center, the arrivals were 135,919 tons, against 64,511 tons in 1914, and 63,046 tons in 1913. This was a welcome set-off against the small supply of cottonseed for crushing, and Hull, the chief producer, has adapted itself well for dealing with the larger receipts of soya. Incidentally it may be remarked here that the addition of palm kernel crushing and extraction has been a new feature of the trade at the Yorkshire port; this results from the efforts of ship owners and others to divert to this country West African kernels previously dealt with in Germany, and there can be no doubt that the 1916 production will be even larger. The total shipments to the United Kingdom of soya beans in 1915 were 315,000 tons, in 1914 195,000 tons, and in 1913 216,000 tons. The value of the beans at Hull has shown marked appreciation, the movement being:—January, £8; March, £8 5s.; September, £8, 7s. 6d.; December, £13 15s., paid, the latter being a record, with £14 asked at the close.

The course of prices may be indicated thus, taking Hull spot value at about the end of the first week in each month:—

SOYA BEANS, SPOT, HULL.

	£.	Ton s.	d.
January	8	0	0
February	8	2	6
March	8	5	0
April	8	3	9
May	8	1	3
June	7	17	6
July	7	17	6
August	8	7	6
September	8	7	6
October	8	15	0
November	9	15	0
December	11	15	0
December 31	14	0	0

Similarly the price of crushed oil on spot at Hull was (again taking value at about the close of the first week in each month):—

SOYA OIL, SPOT, HULL.

	£.	Ton s.	d.
January	28	0	0
February	27	15	0
March	27	10	0
April	28	10	0
May	30	0	0
June	28	10	0
July	25	0	0
August	24	0	0
September	25	10	0
October	26	0	0
November	28	0	0
December	33	0	0
December 31	40	0	0

The demand was poor in the first half of the year, but improved later, and a good call for the oil in the last two months, in conjunction with the elevation in the seed, lifted price undoubtedly.

Soya seed cake was in much larger supply than in 1914, and prices have followed the following course:—

SOYA SEED CAKE, HULL SPOT.

	£.	Ton s.	d.
January	8	7	6
February	9	0	0
March	8	12	6
April	8	0	0
May	7	10	0
June	8	0	0
July	8	2	6
August	8	10	0
September	8	15	0
October	8	17	6
November	9	5	0
December	10	0	0
December 31	10	15	0

Animal and Fish Oils

NEW YORK MARKETS.

Cod Oil.

The past year was one of extraordinary high prices for Newfoundland cod oil. The catch of cod was good, but owing to the unusual conditions which prevailed on account of the war, the situation changed materially. Norwegian cod liver oil advanced sharply under heavy buying by Germany. This caused a scarcity of this material in the United States and England, and Newfoundland interests undertook to turn out large quantities of the medicinal oil, which naturally resulted in a smaller output of the technical grades. Both England and Canada purchased cod oil in a large way, thereby reducing the supply available for the United States. This sent the market skyward, prices advancing to the highest point in years. The year opened with Newfoundland cod oil offering around 36@37c. per gallon, f. o. b. New York. From this point on prices strengthened in all quarters, 45c. being paid by March for spot oil, and 50c. by June. During July and August offerings were freer in some quarters, in anticipation of a good season for fish oils in general, and there were sellers at 48c. per gallon. As fishing for menhaden proved very unprofitable the low offers of cod oil were soon withdrawn. In October leading interests marked up their prices to 50c. per gallon, and during November 60c. was actually paid for spot oil. At the close of the year the offerings by first hands were meager, stocks at St. Johns being sold up, and the market was established around 62c. per gallon for contract lots. The Newfoundland Government, late in 1915, passed a partial embargo on shipments of cod oil. This was done so as to regulate the shipments of this commodity, as it was feared that some of the oil would find its way to Great Britain's enemies. According to the shipping regulations it is necessary for American consumers to furnish a guarantee to the effect that the oil will not be re-exported, without the consent of the British authorities.

The following table shows the high and low prices of Newfoundland cod oil in the New York market for each month during 1913, 1914, and 1915:—

	1913. H.	1913. L.	1914. H.	1914. L.	1915. H.	1915. L.
January	45	45	39	39	37	36
February	45	45	39	39	40	37
March	45	42	39	39	45	40
April	42	42	39	39	45	44
May	42	42	39	38	47	44
June	40	40	38	38	50	47
July	40	40	36½	35½	50	48
August	40	39	38	36½	48	45
September	42	40	36½	34½	45½	45
October	42	40	35	34½	50	45½
November	43	40	36	35	60	50
December	40	39	36	36	62	60

Degras.

Shipments of degras or wool grease came forward irregularly, due to the freight situation, and the price changes were numerous. The tendency of the market during the first quarter of the year was upward under meager spot offerings. In January importers were asking from 4¾c. to 5c. per pound for English degras, average quality, but during March and April prices ranged from 6¾c. to 7¼c. per pound for car lot business. The high prices brought out freer offerings from abroad and prices weakened, until in July and August sales were reported at 6@6¼c. per pound. At the close prices were firmer, leading factors advancing the market to a basis of 6½c. per pound for good quality degras. Production in England was hampered by lack of certain chemicals, which added to a strength of the situation. Domestic producers offered supplies sparingly throughout the period, their output being well sold up. Neutral degras, which is chiefly a Belgium and German product, was virtually unobtainable and prices were wholly nominal. Under normal conditions neutral degras sells around 7½@8c. per pound, but during the year some odd parcels brought as high as $1.10 per pound.

The high and low price per pound for English degras in each month of 1914 and 1915 follows:—

	1914. H.	1914. L.	1915. H.	1915. L.
January	3⅝	3½	5	4¾
February	3¾	3½	5¾	5
March	3¼	3⅛	6½	5¾
April	3⅛	3	7¼	6¾
May	3¼	3⅛	6¾	6½
June	3¼	3¼	6½	6
July	3¼	3⅛	6¼	6
August	4½	3¼	6¼	6
September	4½	4⅛	6½	6¼
October	4⅝	4½	6½	6¼
November	4½	4½	6½	6½
December	4¾	4½	6½	6½

Herring Oil.

Production of herring oil in the Chesapeake Bay district was the smallest on record. The season was a complete failure so far as oil was concerned, the total output amounting to about 250 barrels. The catch of herring was fair, but no surplus was available for the fish factories. The output sold at prices ranging from 32½c. to 35½c. per gallon, f. o. b. factory.

Lard Oil.

The feature was the general increase in the consumption of lard oils. The strength that followed the revival in buying sent prices for various off grades to the highest point in years Price changes in prime oil were unimportant, but substantial advances were noted in the off grades. Export business toward the close was particularly active, with the call chiefly for off oil. During the last quarter there was a sharp advance in greases, etc., which further strengthened the market. Off prime lard oil opened the year at 65@67c. per gallon, but by December leading sellers were asking from 78c. to 82c. per gallon. The prime burning lard oil opened around 90@92c. per gallon, declined to 84@86c. during the summer months, but recovered to 92@94c. towards the close of the year.

The following table shows the high and low prices for prime lard oil in the New York market for each month since January, 1913, and also the high and low prices touched in each year:—

	1913. H.	1913. L.	1914. H.	1914. L.	1915. H.	1915. L.
January	95	90	93	93	92	90
February	90	88	93	92	92	92
March	95	90	94	92	92	90
April	95	90	94	94	90	88
May	97	94	94	92	88	86
June	96	94	92	92	90	88
July	97	95	92	92	88	86
August	97	95	92	92	86	84
September	95	95	92	90	86	84
October	95	95	90	90	90	88
November	95	95	90	90	92	90
December	95	93	90	90	92	92
Year	97	88	94	90	92	84

Menhaden Oil.

A reduction of approximately 30 per cent. in the production of menhaden oil tells the story of the 1915 season. This failure of the catch caused many operators to face substantial losses, three factories being forced into liquidation. The fishing was the worst in years, or, in fact, since modern appliances have come into general use in this industry. The following table affords a comparison in the total production of crude menhaden oil covering a period of seven years:—

	Barrels.
1915	55,000
1914	71,100
1913	96,600
1912	146,000
1911	78,500
1910	77,000
1909	66,000

Practically all of the fishing was done in Southern waters, and for this reason the Northern operators suffered severely. Several Northern plants closed down during the summer months, realizing that it would be an easy matter to reopen should the fish show up in sizeable quantities. In June and July the fishing was very poor, and the month of August did not bring along any improvement. In September the situation improved somewhat in the Chesapeake Bay and North Carolina waters, but there was no change up North. Most of the fishing, however, was done in October and during the first half of November. There was a good demand for menhaden oil, in view of the very high prices which prevailed for competing oils, greases, etc. Prices paid were the highest on record. Early in the season crude Northern menhaden oil was contracted for at 33c. per gallon, in tanks, f. o. b. factory, equal to approximately 35c. in barrels. The meager holdings of Northern oil were virtually disposed of by September, when as high as 39c. was paid.

Southern crude oil opened the season with offers at 33c. per gallon, in barrels, f. o. b. factory. From this point prices advanced sharply, 38c. being paid in September, 42c. in October, and 46½@47c. during November. Moderate parcels sold during December at 46c. per gallon, f. o. b. factory, which disposed of all holdings in first hands.

Production during 1915, according to districts, follows:—

	Barrels.
Northern factories	10,200
Chesapeake Bay	39,000
North Carolina	3,800
Texas and Florida	2,000
Totals	55,000

In view of the small output of crude the offerings of pressed menhaden oil were moderate throughout the season, with prices high. Light strained menhaden oil sold down to 38c. per gallon at the opening of the season, but towards the close leading operators were holding out for 50c. per gallon, with the market strong.

The high and low prices of crude Northern menhaden oil, in barrels, f. o. b. factory, by months for 1913 1914, and 1915, follow:—

	1913. H.	1913. L.	1914. H.	1914. L.	1915. H.	1915. L.
January	28	28	38	37	*37	37
February	28	25	38	38	*37	37
March	28	26½	37	37	*37	37
April	28	28	*37	37	*37	37
May	28	27	*38	37	37	37
June	28	27	*38	37	37	35
July	29	27	37	37	35	35
August	30	29	37	35	35	35
September	35	32	36	35	39	35½
October	35	35	*36	35	†	†
November	37	37	*37	37	†	†
December	37	37	*37	37	†	†

* Nominal. †None offering.

The high and low prices of crude Southern menhaden oil, in barrels, f. o. b. factory, for 1913, 1914, and 1915, by months, follow:—

	1913. H.	1913. L.	1914. H.	1914. L.	1915. H.	1915. L.
January	24	23	34	33	35	35
February	24½	24	32½	32½	35	35
March	25½	25	32	32	35	33
April	26½	25½	32	32	*35	35
May	26½	25½	*32	32	*35	35
June	26½	25¾	*33½	33½	35	33
July	25½	25½	33½	32½	33	33
August	28	25½	34	32½	33	33
September	32½	30½	34	33	38	33
October	33	32½	34	33	42	38
November	33	33	33	32	47	43
December	33	33	35	33	47	46

* Nominal.

The following table shows the highest and lowest prices of light strained menhaden oil in the New York market each month since January, 1911, and also the highest and lowest prices touched each year, the figures being based on the closing quotation each successive week:—

	1911. H.	1911. L.	1912. H.	1912. L.	1913. H.	1913. L.	1914. H.	1914. L.	1915. H.	1915. L.
Jan....	59	57	46	42	33	32	40	39	38	38
Feb....	59	57	45	40	35	32	39	39	40	38
March.	59	57	40	42	34	32	39	39	40	40
April..	59	56	42	37	34	32	39	38	42	40
May...	56	52	40	37	33	32	38	38	40	40
June...	56	48	38	36	32	30	38	38	38	38
July...	48	46	35	33	32	31	38	36	40	38
Aug....	49	45	32	31	34	31	38	37	40	38
Sept...	49	46	31	31	37	35	37	37	42	40
Oct....	49	46	33	32	38	37	37	37	44	42
Nov....	49	46	33	32	39	39	37	37	49	45
Dec....	49	46	33	33	39	39	38	38	50	49
Year...	59	45	46	31	30	30	40	36	50	38

Red Oil.

The increased output of stearic acid naturally brought with it a corresponding increase in the production of red oil. The demand for red oils was only normal, and prices held on a fairly even basis throughout the year. Prices obtained were, on the average, lower than in 1914. The year opened with ordinary quality saponified red oil quoted at 6¾c. per pound. Prices eased off under liberal offerings, touching 5½c. per pound in August. A slight recovery set in during the month of October, and holders marked up their quotations to 6@6½c. per pound. At the close offerings were liberal at 5¾@6c. per pound for saponified red oil. Prices for elaine were from ¼c. to ½c. under those obtaining for saponified stock.

Following are the high and low prices (per pound) for saponified red oil, by months, during 1914 and 1915:—

	1914. H.	1914. L.	1915. H.	1915. L.
January	6¾	6½	6¾	6¾
February	6¾	6¾	6¾	6¾
March	6¾	6¾	6¾	6½
April	6¾	6¾	6½	6¾
May	6¾	6¾	6¼	6
June	6¾	6¾	6	5¾
July	6¾	6¾	5¾	5¾
August	7	6¾	5¾	5½
September	7½	7	5½	5½
October	7½	—	6½	5½
November	7	6¾	6½	6
December	7	6¾	6	5¾

Seal Oil.

The seal catch off Newfoundland in the spring of 1915 was very poor, compared with the preceding year. As a result the supply of oil was scanty, and high prices prevailed. The low price for the year prevailed in the spring, spot seal oil being offered down to 48c. per gallon. The supplies in first hands were soon disposed of, and by June prices ranged from 52c. to 54c. per gallon. From this point on the market developed a strong tone, due partly to the upward movement in all competing oils. At the close of the year jobbers were asking from 62c. to 64c. per gallon, according to quantity.

Reviewing the seal hunt for 1915 a report from Newfoundland states:—

The Newfoundland spring seal fishery is reported practically a total failure, owners of ships standing to lose a quarter of a million dollars in this year's venture. The total catch was 46,796 seals, old and young, for twelve steamers. The gross weight is 1,061 tons, and the net weight 1,018 tons. The net value is $93,094.33, of which one-third, $31,031.44, went to the crews, leaving $62,062.89 for the outfitters. Of the total catch the five steamers in the Gulf of St. Lawrence landed 28,161 seals, and the seven at the front 18,635. Taken as a whole, the 1915 voyage is the worst on record. Twelve of the fourteen ships engaged—Seal and Bloodhound—did not get enough seals to pay coaling expenses.

Sperm Oil.

There were no important developments in the sperm oil industry throughout the year. Offerings were limited, production being smaller than in 1914. Quotations for crude sperm oil were largely nominal, ranging from 48c. to 50c. early in the season, and closing around 56@58c. per gallon. There was a better demand toward the close of the year for refined oil. High prices for competing oils brought out renewed interest in this commodity, and prices developed a fair degree of strength. Refined natural winter 45-degree cold test oil opened the year at 65c. per gallon, but at the close 67c. was the inside price, with the market strong.

The following tabulation shows the high and low price for refined sperm oil (natural winter 45-degree cold test) for each month in 1915:—

	H.	L.
January	65	65
February	65	65
March	65	65
April	65	65
May	65	65
June	65	65
July	65	65
August	65	65
September	65	65
October	65	65
November	67	65
December	67	67
Year	67	65

Stearic Acid.

With foreign competition eliminated, manufacturers of stearic acid had a very good year. There was an active demand for this material, and prices advanced steadily, closing at the highest point on record. Export demand was an important factor, virtually supplying foreign wants. Now this business is being taken care of by domestic producers. The year opened with No. 1 or double pressed stearic acid quoted at 9¾c. per pound. The market moved upward sharply, touching 12c. in April, 13½c. in October, and 14c. in December. These figures show a range for the year of 4¼c. per pound. The output was increased to keep up with the demand. Manufacturers turned their attention to making the higher grades, as the demand was almost entirely for the double and triple pressed acid.

Following are the high and low prices, per pound, of No. 1, or double pressed, stearic acid, by months during 1914 and 1915:—

	1914. H.	1914. L.	1915. H.	1915. L.
January	9⅝	9½	9¾	9¾
February	9½	9½	10½	10
March	9½	9¼	11	10½
April	9¼	9¼	12	11
May	9½	9⅜	12	11¾
June	9¼	9¼	12	12
July	9¼	9¼	12	12
August	9½	9¼	12½	12
September	10	9½	12½	12½
October	9⅜	9⅜	13½	12½
November	9⅜	9½	14	13½
December	9½	9½	14	14

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RED OIL
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PHILIPPINE VEGETABLE OIL CO. Inc.
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PHILA. QUARTZ CO. PQX 41
ANIMAL OILS
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COMPANY
JACOB DOLD PACKING CO. WICHITA KANSAS
THE TEXAS COMPANY
THE ALDEN SPEARE'S SONS CO.
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Tallow Oil.

The first half of 1914 was an uneventful period in the market for tallow oil. Operations were chiefly routine, as both buyers and sellers traded on a hand-to-mouth basis only. Acidless tallow oil held around 62c. per gallon until August, when the situation changed materially. In August and September a general tightening up of prices for all sorts of oils and greases occurred, especially tallow and stearine. This naturally sent the cost of producing tallow oil upwards, and prices advanced sharply. The upward movement in prices was accentuated by an increase in the export demand. The market closed with business fairly active, and leading manufacturers were holding out for 72@75c. per gallon, according to quantity.

The following table shows the high and low price of acidless tallow oil for each month in 1915:—

	High.	Low.
January	62	62
February	62	62
March	62	61
April	62	61
May	62	61
June	61	61
July	62	62
August	63	62
September	64	64
October	70	64
November	72	70
December	74	72
Year	74	61

Whale Oil.

Production of crude whale oil in the United States was not quite up to normal. It is estimated that the output on the Pacific Coast did not exceed 18,000 barrels. Several round parcels were imported from South America, but this failed to materially influence the situation. Prices obtaining during 1915 were very high, due to the strength of competing oils. The soap makers showed more than usual interest in this material, especially in the fall months. For a time a cargo, consisting of approximately 32,000 barrels of whale oil, was offered to traders here by Norwegian intrests, but English buyers finally took over the entire amount. When the season opened crude whale oil was offered around 36c. per gallon for the No. 3, 38c. for the No. 2, and 42c. for the No. 1. From these figures the market advanced steadily under an active demand for the material. Towards the close sales of crude No. 3 whale oil were noted as high as 45c. per gallon, with No. 2 stock offered at 48c., and the No. 1 around 52@53c. Domestic factors in this commodity are preparing to increase their output, owing to the steadily growing demand for whale oil from soap makers, etc. The market for refined whale oil opened the year with ordinary grades quoted at 48@52c. per gallon, but by the close prices ranged from 52 to 56c. The uplift was in sympathy with crude.

The following tabulation gives the high and low price of refined (natural winter pressed) whale oil by months during 1915:—

	High.	Low.
January	48	48
February	48	48
March	48	48
April	48	46
May	46	46
June	48	48
July	48	48
August	50	48
September	50	50
October	50	50
November	52	50
December	52	52
Year	52	46

Lard, Tallow, Stearines, Greases

CHICAGO LARD MARKET.

Leading all other markets of the United States, and the world, as a hog marketing center, as well as in facilities for production of lard, Chicago experienced no trouble in maintaining her supremacy as a lard center in 1915. Not only did this market lead all others in the production and marketing of the actual product, but the speculative trade in that commodity greatly surpassed in volume that enjoyed in other markets of the world. Closing days of the period under review gave indication that this market would attract even greater attention in the future, assuring prosperity not only to those directly interested in operations in the lard market, but the handler of by-products of lard and fats of all descriptions will profit by the advancement of the lard trade in the Chicago market.

Lard trading at Chicago during the year 1915 was of greater volume than has been seen for a great number of years. In fact, statistical information bears out the claim that it was the most satisfactory year in history to the packers, exporters, distributers, brokers and speculators. Particularly may this be said of the business which passed through the clearing house of the Chicago Board of Trade. As usual, the leading role in the market on the Board of Trade was played by the larger packers, who had a hand in all operations, first taking one side of the situation and then the other.

As is always the case, the bulk of the business passing in the speculative market was done in the May future. The orders executed in the pit by brokers acting for various interests reached a greater aggregate than is believed to have been reached in the history of the trade. The prosperity in other industries proved quite a help to the speculative lard market, as many outside interests which were successful in other lines of endeavor felt themselves in a position to take a hand in Board of Trade operations. Of this number, many were attracted by the possibilities presented in the lard market. On several occasion during the year the market was a wildly excited affair and enlisted the services of many brokers who were seldom to be seen in the provisions pit. Despite the enormity of the business passing in the speculative market, the range of prices for the year was below that of previous years.

The lower prices which ruled during the year were attributed to the heavier marketing of hogs of good weight, which enabled packers to secure a larger quantity of lard from their purchases. The heavier production of lard acted as a drug on the market at times and had a tendency to keep prices from mounting to sharply higher rates, as would likely has been seen in the face of the strength displayed by other products of the hog, as well as by the grain markets on the Chicago Board of Trade.

The range of May lard prices at Chicago during the year of 1915, as well as for a series of years, follows:—

Month.	1915-16.	1914-15.	1913-14.
June	....	....	....
July	....	....	....
August	....	....	10.75
September	9.10	....	10.92½
	9.12½	....	10.95
October	9.02½	10.00	11.45
	9.90	10.22½	10.40
November	8.87½	9.82½	11.17½
	9.92½	10.77½	10.70
December	9.57½	9.75	11.27½
	10.30	10.75	10.87½
January	....	10.62½	11.20
	....	11.35	10.95
February	....	10.15	11.40
	....	11.60	10.55
March	....	10.00	11.60
	....	10.82½	10.45
April	....	9.95	10.90
	....	10.35	9.77½
May	....	9.47½	10.62½
	....	10.32½	9.62½
Entire range	....	9.47½	10.75
	....	11.60	11.45

Month.	1912-13.	1911-12.	1910-11.
June	....	....	....
July	....	....	....
August	....	8.80	....
	....	9.12½	....
September	8.72½	10.02½	10.02½
	9.50	10.60	10.60
October	8.82½	9.62½	9.62½
	9.32½	10.35	10.35
November	9.10	9.40	9.40
	9.67½	9.97½	9.97½
December	9.10	9.62½	9.62½
	9.52½	10.45	10.45
January	9.30	9.70	9.70
	9.67½	10.40	10.40
February	8.92½	9.07½	9.07½
	9.45	9.90	9.90
March	9.20	8.25	8.25
	9.95	9.30	9.30
April	9.70	7.75	7.75
	11.20	8.32½	8.32½
May	10.37½	7.85	7.85
	10.92½	8.22½	8.22½
Entire range	8.72½	7.75	7.75
	11.20	10.60	10.60

One of the principal depressing features in the market was the excessive supplies held. The demand for the cash product on domestic account was of a spasmodic character, at times showing considerable urgency, while at others holders found it almost impossible to induce buyers to take hold in anything like a free manner. The lowest prices at which cash lard sold was $7.55 in July, while the best price realized was paid in February, when sales of round lots were made at $11.27½.

The range of cash lard prices during the twelve months of the year follow:—

	High.	Low.	Close.
January	$11.05	$10.40	$11.00
February	11.27½	9.65	9.85
March	10.27½	9.65	9.65
April	10.12½	9.70	9.93
May	10.30	9.42½	9.85
June	9.75	9.10	9.40
July	9.37½	7.55	8.00
August	8.07½	7.67½	8.07½
September	8.35	7.85	8.20
October	9.65	8.20	9.00
November	9.27½	8.70	9.12½
December	9.82½	9.15	9.82½

The price of $7.55 proved the lowest point at which lard has sold at Chicago since 1908. During February of that year cash lard sold as low as $6.97½. The highest price paid for this product during 1915 failed to come up to the prices realized during late years, the highest point of the year being $11.27½, which has been topped for the past five years.

The highest and lowest prices at which cash lard sold during the past forty years, as well as the months in which the extreme points were reached, follow:—

Years.	Months the lowest prices were reached.	Range for the entire year.	Months the highest prices were reached.
1876	September	$9.55 @13.85	March & April
1877	December	7.55 @11.55	January
1878	December	5.32½@ 7.80	August
1879	August	5.30 @ 7.75	December
1880	June	6.35 @ 7.85	November
1881	February	9.20 @13.00	July
1882	March	10.05 @13.10	October
1883	October	7.15 @12.10	May
1884	December	6.45 @10.00	February
1885	October	5.82½@ 7.10	Feb. & April
1886	May	5.82½@ 7.50	September
1887	June & Oct.	6.20 @ 7.92½	December
1888	January	7.25 @11.20	October
1889	December	5.75 @ 7.55	January
1890	December	5.50 @ 6.52½	April
1891	February	5.47½@ 7.05	September
1892	January	6.05 @10.60	December
1893	August	6.60 @13.20	March
1894	March	6.45 @ 9.05	September
1895	December	5.15 @ 7.17½	March
1896	July	3.05 @ 5.85	January
1897	June	3.42½@ 4.90	September
1898	Jan. & Oct.	4.62½@ 6.82½	May
1899	May&June	4.90 @ 5.77½	January
1900	February	5.65 @ 7.40	October
1901	January	6.90 @10.25	September
1902	February	9.07½@11.60	September
1903	October	6.20 @11.00	September
1904	May	6 15 @ 7.92½	February
1905	January	6.55 @ 9.85	August
1906	January	7.32½@ 9.85	November
1907	November	7.50 @ 9.97½	February
1908	February	6.97½@10.45	October
1909	January	9.40 @13.90	November
1910	November	9.70 @14.65	March
1911	April	7.70 @10.67½	January
1912	February	8.65 @11.97½	October
1913	January	9.47½@11.87½	July
1914	August	8.60 @13.60	November
1915	July	7.55 @11.27½	February

The takings by exporters during the year were on a smaller scale, due in many instances to the lack of ocean freight room. In spite of the fact that business on export account was not up to the proportions generally predicted by the trade, it exceeded that of late years, excepting 1914. Indications are that a good inquiry from abroad will be seen for some time to come, at least until peace negotiations have been entered into by the warring nations. As long as the conflict abroad continues to rage, the nations of Europe will be in need of liberal quantities of lard which will have to be furnished by the United States. There was no export trade in lard between this country and Germany, due to the inability of shipping interests to get into that country. Germany, in recent years, has been one of our largest buyers and the loss of this trade has been seriously felt in many quarters. The ending of hostilities will also develop an improved demand on Teutonic account, as the stocks in that country are down to bed-rock and there are many gaps to be filled up. England has purchased the greater amount of the lard sold to go abroad, and it was used by not only her citizens, but by the citizens of allied countries as well.

Never in the history of the Chicago lard trade has there been such an enormous quantity of lard held in this market as during the year of 1915. These enormous stocks were due mainly to the inability of foreigners to make purchases with the assurance that the product bought by them could be safely carried to its desired destination. The largest amount held here was 274,960 tierces, which quantity was in warehouses at Chicago during the month of August. Despite these heavy stocks, holders seemed in no way discouraged, as they all looked forward to a time that must come when the nations of Europe will be forced to come to the United States, and Chicago, to replenish their already exhausted supplies.

Stocks of "contract" lard held in Chicago during each month of the year 1915, together with comparisons for the previous six years, follows:—

	1915. Tcs.	1914. Tcs.	1913. Tcs.	1912. Tcs.	1911. Tcs.	1910. Tcs.
Jan.	19,741	38,738	17,325	49,857	17,703	9,257
Feb.	18,530	73,231	18,981	82,795	9,252	12,968
Mar.	70,543	97,107	13,062	104,959	15,274	7,954
Apr.	96,601	105,705	12,534	107,189	33,776	11,690
May	125,580	123,709	13,304	118,059	44,949	8,845
Jun	195,431	143,059	33,905	120,437	59,780	16,742
July	248,871	169,216	84,781	166,475	113,813	24,833
Aug	274,960	200,574	120,424	194,083	148,444	37,822
Sep	266,913	179,784	125,134	163,857	117,747	31,404
Oct.	240,932	120,921	110,137	91,156	70,730	17,113
Nov	169,751	17,295	64,780	42,702	48,325	30,104
Dec	134,878	11,579	48,523	17,341	46,015	22,685

CHICAGO GREASE MARKET.

Greases met with a good outlet at Chicago during the year of 1915. The demand was of fair character during practically the entire year, only an occasional short period of dullness being experienced. Not only were domestic users good buyers of greases, but the demand on export account was of satisfying volume. During the closing months of the year the offerings were extremely light and in some cases handlers were unable to make desired deliveries. Prices realized during the year averaged higher than during the past few years. Choice "A" white grease finished the year at 8@8¼c.; yellow grease at 7@7¼c., and brown grease at 6@6⅝c.

CHICAGO TALLOW MARKET.

There was an active demand for tallow offerings at Chicago during 1915 and prices realized by producers showed marked improvement over those obtainable for several previous years. The trade, aside from the fact that it was of greater volume and at higher rates, was not unlike that passing in 1914. Interests which were in the market on the buying side during 1914 took a hand in the operations during the period under review. There was no exciting feature to the market that caused comment, as the conditions surrounding trading in other lines warranted the higher prices asked by tallow holders. Edible tallow finished the year of 1915 at 9@9¼c.; prime packers' was held at 9c.; No. 1 loose at 8@8¼c., and No. 2 loose at 7¼c.

LONDON TALLOW MARKET.

Tallow in 1915 attained values unprecedented for many a long year, the advance mainly taking place in the second half. The balance of the whole period, however, shows a net increase of 12s.@13s. per cwt. on the basis of fair to fine mutton.

The fluctuations at times were violent. In January and February prices rapidly underwent augmentation, but subsequently declined and by June had fallen considerably, offerings being in excess of normal. Later, however, came sensational advances, supplies being insufficient to meet the demand and the stringency was accentuated by the difficulty in getting deliveries, owing to the congested state of the docks.

In December there was some recession in values, prices having apparently been forced too high. Business in the second half of the year was chiefly at public auction, very little being done privately. The quotations over each month for fine mutton and beef covered the following ranges.—

	Fine mutton. s. d.	s. d.	Fine beef. s. d.	s. d.
January	38 6	@40 6	38 6	@40 0
February	41 0	@43 0	40 0	@43 0
March	43 9	@42 6	44 0	
April	42 6	@42 6	44 0	@39 0
May	42 0	@38 0	39 0	@35 6
June	38 0	@36 6	34 0	@36 0
July	37 0		36 3	@37 3
August	37 0		37 3	@37 6
September	37 0	@38 0	37 6	
October	38 6	@41 0	38 0	@40 9
November	42 9	@53 0	42 6	@52 6
December	53 0	@50 6	52 6	@50 3

A comparison of fair mutton and beef prices at the open and close of the year shows:

	Fair mutton. s. d.	Fair beef. s. d.
January	35 6	32 0
December	48 6	47 0

Comparative (official) prices for tallow-stuffs, etc., for 1915 and three previous years at about the close of the twelve months show:—

	1915. s. d.	1914. s. d.	1913. s. d.	1912. s. d.
Town tallow, cwt.	44 6	30 6	35 0	33 6
Melted stuff, cwt.	32 6	21 6	23 0	23 0
Town fat, per 8 lbs.	11	.. 4½	.. 8½	.. 8

In the second six months of the year shipments from Australia and New Zealand were on a much reduced scale, contrasted with the two preceding years. The London stock still appears rather considerable, but it does not seem readily available, as the high prices have not tempted holders to offer freely. Owing to the small scope of business on c. i. f. terms the stock has tended to bulk larger than usual, through operators holding supplies against forward contracts. Estimated importation and consumption during the last six years have been as follows:—

	1915. Tons.	1914. Tons.	1913. Tons.
Stocks London warehouses, January 1	2,400	4,400	3,000
Imported	58,500	56,500	60,200
Totals	61,100	60,900	63,200
Home consumption	22,000	20,000	15,000
Exported	34,100	38,300	43,800
Stocks London warehouses, December 31	5,000	2,600	4,400
Totals	61,100	60,900	63,200
	1912. Tons.	1911. Tons.	1910. Tons.
Stocks London warehouses, January 1	4,000	2,000	2,300
Imported	58,500	70,000	76,200
Totals	62,500	72,000	78,500
Home consumption	16,400	15,000	13,500
Exported	43,100	55,000	63,000
Stocks London warehouses, December 31	3,000	4,000	2,000
Totals	62,500	72,000	78,500

The goods were received from and distributed to countries as shown in the following table:—

IMPORTS.

	1915. Tons.	1914. Tons.	1913. Tons.
South America and Falkland	2,000	1,300	1,400
North America	1,200	50	200
Australia	31,000	32,400	36,500
New Zealand	23,900	22,400	21,700
Other districts	300	350	300
	1912. Tons.	1911. Tons.	1910. Tons.
South America and Falkland	4,200	8,950	10,800
North America	500	150	300
Australia	32,200	44,000	44,000
New Zealand	20,300	16,000	19,500
Other districts	1,200	900	1,000

EXPORTS.

	1915. Tons.	1914. Tons.	1913. Tons.
Russia	800	14,500	16,500
Germany	....	3,400	8,000
Holland	19,300	13,000	11,200
Belgium	....	1,400	3,600
Italy and Spain	8,000	2,700	1,300
Other countries	6,000	3,300	3,200
	1912. Tons.	1911. Tons.	1910. Tons.
Russia	17,000	24,500	30,500
Germany	6,400	8,000	8,200
Holland	10,900	11,000	13,300
Belgium	3,300	5,000	4,300
Italy and Spain	2,700	2,700	2,700
Other countries	2,800	3,800	4,000

Shipments to abroad of home melt from London have been as follows in the last six years:—

	Tons.		Tons.
1915	5,156	1912	6,525
1914	7,794	1911	6,810
1913	11,569	1910	4,340

New York Paint Market

Price upheavals have featured the market for paint materials. Imported materials naturally were affected by conditions abroad and commanded abnormal prices, partly because of this scarcity, and partly because of high ocean freights. Many materials of home manufacture require goods of foreign origin in their production, and this served to cut down domestic offerings of many selections. With supplies below normal in volume it was inevitable that prices should advance and in the vast majority of cases paint material closed the year at higher levels than were in effect in January.

Important pigments followed the lead of the metal markets, and unsettled conditions prevailed in the case of the lead and zinc products. Spelter, because of its use in making munitions of war, was especially high in price, and with the heavy demand for export the output was sold ahead throughout the year. Zinc ore also went to high prices, and zinc oxide, both American and French process, could not be kept at normal prices in the face of greatly producing costs. White lead and the other lead pigments fluctuated in price more frequently than ever before, and about the middle of June the situation became so complicated that quotations were practically nominal for a few days. With this exception prices for these pigments were free, and sellers did not appear to be handicapped by any lack of supplies. There was a steady call for export in the case of the lead and zinc pigments, and official figures show the outward movement to have been larger than in any preceding year. Lithopone is in the class of pigments which went up in price. In former years considerable dependence had been placed on foreign grades. Imports were very small during the year, and the output at home was not large enough to make up for this loss. The result was that offerings at times were scarce

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and premiums were paid by those who were forced into the market.

The dry color industry is more dependent upon outside sources of supply than most other branches of the paint trade. This was amply demonstrated during the year by the position of the various selections. Aniline colors were to be had only in a small way and at enhanced prices. Foreign dry colors, especially those of German origin, were practically out of the market. Many raw materials required by domestic manufacturers were either unobtainable in any quantities or were at abnormal price levels. As a result the home output of some selections was diminished and market quotations were unsettled. Considerable experimenting was done by manufacturers and greater resource was had to the materials which were available. For instance, prussiate of soda replaced yellow prussiate of potash to a large extent, and there was a wider use of bichromate of soda than usual. Earth colors were in better demand and firm in price, though not to the same extent as the chemical colors.

Among the miscellaneous materials special mention may be made of casein, owing to the oversold condition of the market. Imports were restricted and this in itself was sufficient to create a strong market. Domestic producers were unable to step into the breach, for their output likewise was smaller than usual. This resulted from the increased call for cheese which in turn grew out of a sharp falling off in imports. Barytes found a good outlet, and in the latter part of the year a fair export trade developed. Whiting was firm at all times, owing to difficulty in securing supplies of chalk. Metallic paints held a normal course, with a steady consuming trade. Paint making oils were higher than in 1914, and were especially firm at the close of the year.

Prepared paints came in for wide discussion in the closing months of the year, because manufacturers held prices down to a much lower level than appeared warranted in view of increased producing costs. A comparison of costs in a single gallon of paint, as taken from an editorial in the Reporter, under date of December 20, shows the following:—

Zinc oxide, 4.6 lbs. at 8½c. per lb.	$0.39675
Dry white lead, 4.6 lbs. at 6¾c. per lb.	.2875
Linseed oil, 4.75 lbs. at 8c. per lb.	.38
	$1.06425

The cost of these materials at this time last year was:—

Zinc oxide, 4.6 lbs. at 5¼c. per lb.	$0.2415
Dry white lead, 4.6 lbs. at 5c. per lb.	.23
Linseed oil, 4.75 lbs. at 6c. per lb.	.2850
	$0.7565

PIG LEAD.

Lead began the year at New York with a price of 3.8 cents a pound, nearly the minimum price of the year, and remained practically stationary until the middle of February. A gradual rise brought the price to 4.2 cents in April, and it remained there until the latter part of May. A rapid rise next followed, and lead reached the maximum for the year at 7.56 cents on June 14. A sharp decline, followed by partial recovery and then by a more general decline, brought the price to 4.4 cents in the latter part of August. After a slight recovery and another decline to 4.45 cents in September, the price gradually rose and closed the year at about 5.4 cents. The average New York price for the year was 4.7 cents a pound, compared with 3.9 cents in 1914 and 4.4 cents in 1913. The following describes the course of London prices:—

The London price of lead started at £19 a long ton (4.1 cents a pound) and rose until the later part of March, when it reached £23 2s. 6d. a long ton (5 cents a pound). From this point the price fell to £20 1s. 3d. a long ton (4.3 cents a pound), after which there was a sharp ascent to £28 2s. 6d. (6.1 cents a pound) at the middle of June. After several ups and downs the price dropped to £20 6s. 3d. (4.4 cents a pound) by the middle of August, and then a gradual rise carried it to £29 5s. a long ton (6.3 cents a pound), and it closed the year at about that figure. The London market was fairly parallel to the New York market, and, except for the period of high prices in the United States during July and August, was uniformly higher than the American market.

The following table shows the production of refined lead, in tons, in the United States from 1900 to 1915, inclusive:—

	Deslivered.	Soft lead.	Total production.
1900	329,658	48,021	377,679
1901	523,790	57,898	381,688
1902	303,011	74,050	377,061
1903	295,074	83,444	378,518
1904	315,284	89,169	404,453
1905	296,186	103,116	399,302
1906	313,884	90,860	404,746
1907	314,241	99,948	414,189
1908	295,420	101,013	396,433
1909	329,310	118,802	448,112
1910	329,062	141,318	470,380
1911	331,029	155,947	486,976
1912	311,414	169,551	480,965
1913	301,830	156,013	465,843
1914	337,552	199,527	537,079
1915	355,000	210,000	565,000

WHITE LEAD.

Frequent price changes with a general upward trend to prices have featured white lead during the period under review. General conditions have worked to some extent toward higher producing costs. Labor, overhead charges, sanitary regulations, the workmen's compensation act, etc., have played a part in increasing values for manufactured goods. The position of raw materials, however, furnishes the most compelling reason for putting up the selling prices of white lead. A comparison of prices for pig lead and acetic acid during 1915 and the preceding year will illustrate this and demonstrate the necessity for the advanced quotations for basic carbonate and basic sulphate white lead. At the close of 1914 pig lead was offered at 5 cents per pound, and early in 1915 it was as low as 3.50 cents per pound. Yet the closing price in December was 5.40 cents per pound, and comparatively high prices had ruled over the greater part of the year. Acetic acid, 56 degrees, more than doubled in price over the figures of 1914. Early in the year, while basic materials held a fairly normal course, corroders maintained a steady price for the lead pigments, and quotations were then at the lowest levels of the year. In March the first upward revision was made, and a second rise came in May. One of the most exciting periods in the history of the trade came in June, when four successive changes in price schedules were announced by corroders. Around the middle of June the metal market was so unsettled that dry basic carbonate white lead was marked up to 7¾ cents per pound and sellers were not willing to entertain bids for future deliveries. This was the high price of the year and values then eased off under the influence of a lower metal market, and the middle of August found white lead selling a full 2 cents per pound under the high level. Recovery in pig lead prices in November effected a higher market for the pigment, and the year closed with 6¼ cents per pound quoted for dry white lead, and conditions were very firm. Basic sulphate white lead was subjected to the same influences as basic carbonate, and the two materials sold at a steady differential of one-quarter cent per pound at all times. White lead in oil opened the year at 6¾ cents per pound and closed at 7¼ cents per pound. Hence the net increase for the year was one-half cent per pound, while the dry pigment advanced at the rate of 1¼ cents per pound. The lessening of the differential between the product, dry and in oil, was due to higher costs of corroding.

With the exception of a brief period in the summer months consuming demand for white lead was good throughout the year. Export buying was a prominent factor, and this branch of the trade showed a material gain over the preceding year. While official figures for the calendar year are not yet available, it is probable that exports of white lead were larger in 1915 than in any other year in the history of the trade.

Figures showing production of basic carbonate white lead during the year are not yet at hand, but in 1914 the marketed production was 159,474 short tons, valued at $19,943,239. Of this total 130,398 short tons valued at $16,983,587 were reported sold in oil and 29,076 short tons, valued at $2,959,652, were reported sold in the dry state. Sales for 1914 represented an increase over those for 1913 of 16,848 short tons in quantity and of $1,831,020 in value. The average price per ton of basic carbonate white lead ground in oil was $130.24 per ton, and the average price per ton of dry white lead was $101.79.

The following table shows the price of dry white lead for each month last year, with comparisons for the former three years:—

	Cents per pound. 1915.
January	5 @—
February	5 @—
March	5 @5¼
April	5¼@—
May	5¼@5½
June	6 @7¾
July	7¾@—
August	5¾@6¼
September	5¾@—
October	5¾@—
November	5¾@6¼
December	6¼@—

	High.	Low.
1914	5¼	5
1913	5¾	5¼
1912	6	5¼

RED LEAD.

Unusual features are brought to light in a review of the market for red lead for the year. In the first place prices have been more irregular than usual, as the entire list of lead pigments moved in sympathy with pig lead, and the latter was unsettled. Net changes for dry red lead show a gain of 1¾ cents per pound during the twelve months. As there is a quicker turnover of red lead than of white lead, the former has shown more of a disposition to respond to changes in the metal market, and the net gain was larger than in the case of the white pigment. Red lead in oil also was held more firmly as the year advanced, and the closing price of 9 cents per pound compares with 7 cents per pound as the quotation at the beginning of the year. In addition to a normal call for supplies from domestic consumers large quantities of red lead sold for export. Late in the year this demand increased in volume and the strong call for stocks had a corresponding effect on prices, and if it continues this phase of the market is bound to be highly important in 1916. Imports of red lead, in contrast, were smaller than usual and competition from foreign grades therefore was at a minimum. The marketed production of red lead in 1914 was 18,697 short tons, valued at $2,151,054, an increase of 1,062 short tons in quantity and of $23,078 in value over the output of 1913. The average price per ton decreased from $120.67 in 1913 to $115.05 a ton in 1914, a decrease of $5.62. Red lead is produced by heating litharge in reverberatory furnaces. The particles of this pigment vary much in size.

The subjoined table shows the high and low prices of domestic red lead for last year, with comparisons for the former three years:—

	1915 High.	1915 Low.
January	5½	5¼
February	5½	5¼
March	5¾	5½
April	5¾	5¾
May	6	5¾
June	8¾	6½
July	7¾	7½
August	7½	6½
September	6½	6½
October	6½	6½
November	7¼	6½
December	7¼	7¼
1914	6½	5½
1913	7½	6
1912	7½	6½

LITHARGE.

The marketed production of litharge in 1914 was placed at 27,345 short tons, valued at $2,856,092, as compared with 23,093 short tons, valued at $2,524,707, in 1913. This shows an increase in quantity of 4,252 tons and in value of $331,385. The average price per ton was $109.33 in 1913 and $104.45 in 1914. In common with the other lead pigments litharge was influenced by high quotations for pig lead and fluctuated considerably in price during the year. The net change was in sellers' favor as closing quotations were 6½ cents per pound as compared with the opening price of 5 cents per pound. Consuming demand was about normal, with a rather active call for stocks in the closing quarter of the year.

The highest and lowest quotations for domestic litharge on the local market for the last year, with comparisons, follow:—

	1915 High.	1915 Low.
January	5	5
February	5	5
March	5¼	5
April	5¼	5¼
May	5½	5¼
June	8¼	6
July	7	7
August	7	6
September	6	6
October	6	6
November	6½	6
December	6½	6½
1914	6	5
1913	7	6
1912	7	6½

ORANGE MINERAL.

At the beginning of the year there was a difference in price for orange mineral with the open market quotation at 7¼@8¼ cents per pound. At the close of the year the price in all quarters was held at 9 cents per pound. The year therefore did away with the distinction according to seller and resulted in a net advance of prices. For nearly the first half of the year a steady market was maintained, but the flurry in the lead market in June brought about a revision in prices, and some sellers were quoting 9¾ cents per pound for a time for their offerings. Unsettled conditions then prevailed for the balance of the year and different quotations were named in July, August and November. The low price was in effect at the beginning of the year and the high price in June. In August there were general declines in all the lead pigments and orange mineral went to 8¾ cents per pound. In November the price was fixed at 9 cents per pound, and the latter level was maintained over the balance of the year.

The marketed production of orange mineral as reported to the Geological Survey was 426 short tons, valued at $70,019, in 1914, as compared with 434 short tons, valued at $71,625, in 1913. The apparent average price per ton was $164.36 in 1914, as compared with $165.03 in 1913, a decrease of 67 cents a ton. The output given above does not include all orange mineral manufactured, as some producers combined their returns for orange mineral and red lead.

Prices for domestic orange mineral for each month of the past year, with comparisons for the former years, were as follows:—

	1915.
January	7¼@8¼
February	7¼@8¼
March	7¼@8¼
April	7¼@8¼
May	7¼@8¼
June	7¼@9¼
July	—@9¼
August	8¾@9¼
September	—@8¾
October	—@8¾
November	—@9
December	—@9

	High.	Low.
1914	8½	7¼
1912	10	8½
1913	10	7½

SPELTER.

Zinc mining and smelting enjoyed a year of unparalleled prosperity. There was a large increase in smelting capacity during the last half of the year, the total number of retorts at the end of the year being 154,898, as compared with 130,642 at the midyear, and with 113,914 at the beginning. In addition 20,758 reports were under construction or planned.

The production of primary spelter from domestic ore in 1915 is estimated at 460,000 short tons, and from foreign ore at 30,000 tons, a total of 490,000 tons, worth, at the average St. Louis price, $139,160,000, compared to a total of 353,049 tons in 1914, worth $36,010,998, and made up 343,418 tons of domestic origin, and 9,631 tons of foreign origin. This was a gain of 137,000 tons and of more than $103,000,000 in value. As noted above, however, the gain in value was considerably more than this amount. The production of spelter from both domestic and foreign ores, apportioned according to the States in which it was smelted, by six months periods, was as follows:—

SPELTER PRODUCTION, 1914-1915, BY STATES, IN SHORT TONS.

State.	1914 First half.	1914 Second half.	1915 First half.	1915 Second half.
Illinois	62,062	65,884	74,982	85,348
Kansas	23,737	20,775	35,247	65,398
Oklahoma	45,443	45,924	51,172	57,532
Other States	43,816	45,410	55,131	65,190
Totals	175,058	177,991	216,532	273,468
Yearly totals	353,049		490,000	

Reviews of the St. Louis and London markets follow:—

Spelter opened at St. Louis in January at 5.5 cents a pound and immediately began the long rise, which, except for one considerable setback in March and a smaller one in May, continued until June 4, when spelter reached 26.5 cents a pound. A sharp drop immediately carried the price down to 17.75 cents by June 22, after which it recovered to 22.75 cents by July 9. Another sharp break let the price go down to 16.75 cents in the middle of August. Several ups and downs followed, after which the price rose to 19 cents in the later part of November. A sharp decline carried the price down to 15 cents at the middle of December. A rapid recovery followed, and spelter closed the year at about 17.25 cents a pound. The average price for the year of prime Western spelter at St. Louis was 14.2 cents a pound.

The London spelter market opened at £28 2s. 6d. a long ton (6.1 cents a pound) and, nearly paralleling the American market, rose to £110 a long ton (23.8 cents a pound) in the middle of June, dropped to £55 a long ton (11.9 cents a pound) in August, rose to £105 a long ton (22.7 cents a pound) in November, and closed the year at £90 a long ton (19.5 cents a pound). In the first nine months of the year the London price was sometimes below and sometimes above the American price, but from October onward the London price was consistently the higher, in November and December averaging nearly 2 cents a pound more than the St. Louis price.

ZINC OXIDE.

A comparison of the prices named for zinc oxide on 1915 contracts, and those announced late in the year for 1916 delivery is sufficient in itself to summarize conditions which prevailed during the year. American process zinc oxide was quoted at 5⅝c. per pound at the beginning of the year, and the contract price for 1916 was announced in November as 8⅝c. per pound. French process zinc oxide opened the year at 7c. per pound for red seal, 7½c. per pound for green seal, and 8c. per pound for white seal. The quotations as fixed late in the year for 1916 business were 16c. per pound for red seal, 16½c. per pound for green seal, and 17c. per pound for white seal. While other factors contributed to bring about the higher prices the most important reason was found in the position of raw materials. Both zinc ore and spelter were on the upward trend, and at times spelter was practically unobtainable, as the output was sold ahead and foreign buyers were competing strongly for what material was offered. Prices for zinc oxide were under the parity of spelter, and this caused some speculation in the former. Contracts of zinc oxide were turned back into the open market and handsome profits thus realized. With imports of zinc oxide on a curtailed basis there was a greater demand for the domestic product, and inquiry for export was more insistent than ever before. The spot market in the latter part of the year was largely nominal, as first hands were practically sold out on contracts. Second hands were asking high prices for whatever they could get hold of. The materials market was in such an uncertain position that in announcing prices for 1916 contracts sellers adopted the policy of restricting such characters to the first half of the year for American process zinc oxide, and to the first three months of the year for French process zinc oxide. Separate figures are not given for the domestic production of zinc oxide as sublimed lead is included in the official figures. On that basis marketed production in 1914 was 106,791 short tons, valued at $9,978,710, as against 97,573 short tons, valued at $9,020,896, in 1913.

DRY COLORS.

While other branches of the paint trade were obliged to meet extraordinary conditions during the year, dry colors were affected to a greater extent perhaps than any other materials. This has special reference to the chemically produced colors. Practically every item in the dry color list was advanced in price, but the rise in prices for the earth colors was slight in comparison with the other selections. The various grades of black were in a fairly normal position for some months, but in the latter part of the year carbon gas black went up in price and lampblack became unsettled owing to advances in mineral oil. The other grades of blacks also went to higher levels. Blues of certain grades were among the first to display the effects of changes in our import trade, and the irregular market

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Barrett Standard

Benzols - Toluols - Coal Tar Naphthas

For use in the manufacture of paint specialties, rubber goods, explosives, aniline oil, refined Chemicals, etc.

Note: We are Sales Agents for other manufacturers of these products as well as manufacturers of them ourselves.

NAPHTHALINE:- All Regular Forms. For moth preventative and dye intermediate uses.

COAL TAR OILS: Neutral or of guaranteed acid content. Special grades for special purposes.

CARBOLIC AND CRESYLIC ACIDS:- Both Crude and Refined. Also Dip Oil for disinfectant manufacturers.

DISINFECTANTS: All standardized, but of different strengths with guaranteed coefficients ranging from 2 to 20 inclusive.

The Barrett Company

CHEMICAL DEPARTMENT

17 Battery Place - - - NEW YORK N. Y.

for the potash blues which became prominent in the latter part of 1914 continued throughout 1915. Prices for Prussian blue at times were merely nominal, as sellers had very little stocks on hand and were treating with buyers on private terms. At the beginning of the year this color was offered at 48 cents per pound, but in the closing months the price was held around $1.50 per pound. Berlin blue, milori and Chinese were in about the same position as Prussian blue, and prices for these selections advanced in the same proportion. Ultramarines were offered at a range of 4 cents to 14 cents per pound in January, but in December the price was up to 8@24 cents per pound. Paris green was not quoted late in the year, as raw materials were at exceptionally high figures and hard to obtain. Chrome green of all grades advanced sharply during the year, and the same was true of chrome yellow. Para toners were practically unobtainable toward the close of the year and were nominally quoted at $2.50@3 per pound. French carmine, No. 4, went up to $5@6 per pound, as against an opening price of $3.50 per pound. Vandyke brown sold in small lots at 10 cents per pound late in the year, but stocks were about exhausted and no large lots were available at any price. During the year figures were compiled showing domestic production of mineral colors. According to these figures the total quantity of umber and sienna sold in the United States in 1914 was 790 short tons, valued at $21,070, an increase of 14 tons in quantity and of $280 in value, as compared with the production of 1913. The average price of umber and sienna per ton in 1914 was $26.67, as compared with $26.79 in 1913.

In the following table is given the marketed production of umber and sienna in the United States for the period 1910-1914:—

MARKETED PRODUCTION OF UMBER AND SIENNA, 1910-1914, IN SHORT TONS.

	Quantity.	Value.
1910	1,015	$26,700
1911	1,005	26,225
1912	805	21,975
1913	776	20,790
1914	790	21,070

The quantity of ocher sold in 1914 was 14,387 short tons, valued at $136,185, compared with 17,578 short tons, valued at $173,944, in 1913, a decrease of 3,191 short tons in quantity and of $37,759 in value. The average price per ton was $9.78 in 1912, $9.90 in 1913 and $9.47 in 1914.

The following table gives the quantity of ocher sold by States from 1911 to 1914, inclusive:—

MARKETED PRODUCTION OF OCHER, 1913-1914, BY STATES, IN SHORT TONS.

	1913		1914	
State.	Quantity.	Value.	Quantity.	Value.
Georgia	11,420	$123,000	8,667	$84,193
Pennsylvania	3,935	32,175	3,790	34,227
Other States	2,223	18,679	1,981	17,769
Totals	17,578	$173,944	14,387	$136,185

BARYTES.

Imports of barytes were on a comparatively small scale throughout the year. As a result a better demand was experienced for domestic grades, and the most important development of the year was the receipt of numerous orders for export. Prices for barytes were steady over the greater part of the year, but later on when demand assumed larger proportions and sulphurous acid advanced in price, sellers of barytes were firmer in their views and good prices were reported to have been realized, especially on sale for grade, in the earlier months of the year, but toward the close some sales were reported at $25 per ton and better.

CHALK.

French sources of supply were cut off during the year, and, as a result, there was no trading in French grades. Different cargoes of Danish chalk were imported, but in general the supply was restricted to English chalk. The latter was not offered freely at any time, as there was difficulty in securing shipments. In the first place labor was scarce at the mines and the output was curtailed. The British Government was making use of the wharves from which chalk was accustomed to be shipped. Hence it was necessary to lighter the latter to other points, which meant an additional cost. Vessels for shipping were hard to find, and charter rates were high so that quotations for chalk delivered at New York were far above the ordinary levels. It is reported that a prominent company at Boston required some chalk and paid 35s. per ton to charter a vessel for bringing it to this country. This would mean a delivered price of close to $10 per ton. Sales were made, however, during the year as low as $3.90 per ton ex-vessel at New York, and at the close of the year the market was nominally held around $4.50 per ton.

CHINA CLAY.

Foreign grades of china clay were in limited supply at most periods of the year. The shipping situation was the important factor in the market. Higher costs of ocean freights and fewer vessels to transport the clay briefly explain the situation. Stocks in sellers' hands in domestic market were exhausted and practically all arrivals were sold ahead so that there was hardly any trading in the spot market. Domestic grades of clay were in good demand and consumption was increased by the scarcity of foreign offerings. All grades were firm in price during the year, with high transportation costs affecting both foreign and domestic. Domestic was quoted at $10@12 per ton late in the year, which represents an advance of $1 per ton over the price earlier in the year. Foreign was quoted at $12.50@16 per ton, against $11@15, the previous price.

LITHOPONE.

Reduced supplies of foreign lithopone and higher producing costs for domestic grades formed the principal features of the market for this pigment. Some consumers had contracts for 1915 delivery which were placed at 3½@4c. per pound. Spot material was offered around 4c. per pound early in the year, but the trend of prices was upwards, and in the latter part of the year values had advanced to 11c. per pound, with the output pretty well sold out. Considerable contract business was placed when prices were established at 6c. per pound, but the latter price did not hold good for long. Foreign grades were more or less nominal at all times, as arrivals were small, and were mostly sold ahead. Production of lithopone was reported to have increased, but no figures for the year are available. The marketed production of lithopone in 1914 was reported as 32,819 short tons, valued at $2,490,530, as compared with 29,685 short tons, valued at $2,170,445, in 1913, an increase in quantity of 3,134 tons and in value of $320,085. The average price per ton in 1913 was $73.12, which rose to $75.89 in 1914. Lithopone contains approximately 70 per cent. barium sulphate, from 25 to 29 per cent. zinc sulphide, and from 1 to 5 per cent. zinc oxide. In 1914 lithopone was made at three plants in New Jersey, at two plants in Pennsylvania, and at one plant in Delaware.

METALLIC PAINTS.

A steady call was reported for metallic paints during the year. This was helped along by the steady position of prices. Trading was mainly for prompt shipment, but some reports credited large consumers with covering future requirements, and contract business became important. Prices for metallics were held practically unchanged throughout the period, but there was some difference in this regard, according to grade and seller. Quotations were given at $16@18 per ton for brown, and $12.50@17 per ton for reds, the prices being f. o. b. works.

The following table gives marketed production of metallic paints during 1913 and 1914:—

	Short tons		Value	
	1914.	1913.	1914.	1913.
New York	14,678	14,949	$33,864	$34,041
Pennsylvania	9,862	8,312	121,888	106,172
Wisconsin	2,339	2,144	8,389	11,584
Other States	4,068	4,693	15,512	19,467
Totals	30,947	3,098	$179,653	$171,264

The production of metallic paints is reported from some States mainly in terms of the dry ground product, the average price per ton of which is considerably greater than that of the crude ore produced in the same States and sold as such to the paint mills. The price of the crude ore sold as such apparently varied between $1.56 and $3.58 a ton. The higher average value for metallic paint is probably to be explained by the fact that the large producers operate their own mines and the material is marketed by them in the ground form.

WHITING.

The market for whiting is so closely connected with that for chalk that conditions which affect the latter are bound to be reflected in the former. During the year the chalk supply was far from adequate and uncertain about future stocks gave concern to grinders. Demand for whiting was good, with the rubber and paint trades as the chief buyers. Prices naturally were affected by the stringency in the raw material. Quotations varied according to seller, and the Boston market was reported to be the first to be affected, as an advance of 10 cents per 100 pounds was announced there when local sellers were holding at unchanged prices. Philadelphia also was said to be on a higher basis late in the year than was the case in New York. Contracts for 1916 were accepted in the latter part of the year, and in general these represented an advance over those effective for 1915 business. English cliffstone closed the year in a more favorable position than other selections, as it was more accessible at shipping points, and some importers who brought it in as ballast sold at comparatively low prices.

GLUES.

The market for glues opened the year in a quiet condition, and according to some reports the trade was not more than 75 per cent. of normal. Conditions soon improved, and the year taken as a whole was fairly satisfactory. In the first place, there was a marked falling off in the imports of glue, and this had a beneficial effect on consumption of domestic grades. The latter were said to have found a good outlet in branches of the textile trade and the paper trade showed more than ordinary interest. Cabinet grades had periods of activity and the total volume of sales while not able to be measured in definite terms was up to normal standards.

VARNISH GUMS.

Considering the unsettled conditions which existed for many imported materials, varnish gums may be considered as holding a fairly normal course over the greater part of the period. Supplies of high grade kauri gum were not very plentiful at any time, and there were periods when the offerings of damar were restricted. Toward the close of the year the situation became more complicated and firmness at primary points, combined with increased ocean freights, had the effect of putting up prices for all grades. One of the features of the year was the active demand which arose for Congo copal gums. Kauri gum was of especial interest owing to the steps which had been taken at Auckland to conserve the industry. The first annual report of the Department of Lands and Survey in New Zealand had the following about the kauri gum industry:—

In order to alleviate the depression in the gum industry resulting from the war the Kauri gum industry amendment act was passed in November, 1914. This act authorized the working of the kauri gum lands and the purchase and sale of gum by the State, and contained authority for the raising of £50,000 for this purpose. The act further authorized the making of an advance to the vendor of 50 per cent. of the value of the gum on the basis of prices current on July 1, 1914. The assistance rendered to the gum industry by the act proved highly beneficial and averted considerable distress. The chief scene of operations was in the far north of the Dominion, particularly the district of Lake Ohia and Waipapakauri, including the small townships or settlements of Mangawai, Waiharara and Waihopo. The total value of gum produced from face-digging works, which were in the nature of relief works, was estimated on July prices at £3,122, leaving a net profit, after meeting the expenses, of over £500. Purchases under the act amounted to the approximate value of £5,000. The amount of kauri gum exported in the period from August 1, 1914, to March 31, 1915, was 3,365 tons, valued at £198,531, as compared with 5,961 tons, valued at £363,205, for the corresponding period in 1913-1914.

The highest grades of kauri are becoming scarcer every year, as no new sources of supply are found. Prices for kauri have ranged from 3½ cents per pound to $1.10 per pound, according to grade. Other grades of gum are priced according to grade, but the closing figures for the year showed a gain in practically all cases over those in effect earlier in the period.

WINDOW GLASS.

It is estimated that production of window glass by the hand-operated factories for the 1914-15 fire was 2,740,948 50-foot boxes, exclusive of stock sheets and grinders. Of this amount 1,632,206 boxes were single strength glass, of which 27 per cent. was A and 73 per cent. B grade. Of the 1,370,474 boxes of double strength produced 45 per cent. was A and 55 per cent. B grade. With the output of the machine plants to be added there was a good supply of glass on hand in the early part of the year, in spite of the fact that imports were on a small scale. During the spring and summer months the hand-operated plants were idle, but supplies were large enough for all needs, and there was even talk of an overproduction as a result of activity in the machine plants. The hand-operated plants started up early in November, but by that time a new situation had arisen and demand for glass, both for home consumption and for export, was extremely good and stocks were reduced to a minimum. Discounts were lowered, and as buying orders kept coming in manufacturers sold their output for a considerable period ahead. In the closing week of the year prices were withdrawn, with the understanding that higher prices would go into effect for the new year. The reduction in surplus stocks, together with the sold-up position of producers, placed the industry at the close of the year in the best position reported for many years, and the outlook was regarded as the most promising in the history of the trade.

LEGHORN UMBER AND TALC MARKETS.

UMBER, EARTH.—The volume of business in 1915 has been larger than in the previous year. However, on account of the ever-increasing difficulty and now of the impossibility of getting the crude material from the island of production, the stock has been rapidly diminishing for the last months, so that it is now quite insufficient to meet the urgent demand. Of course, prices have advanced rather appreciably and they vary now from £5 5s. to £5 15s. for the raw powdered qualities, and from £6 to £6 10s. for the burnt, all per ton, f. o. b. Leghorn. But even higher prices could easily be obtained if goods were offered. An improvement in the situation will not be attained until after the war.

TALC.—Also in this product the export business in 1915 has been more considerable than in the previous year. The facilities of shipping, however, have been diminishing gradually for the last six months, so that for the last time the difficulty of shipments has been a serious one. Besides, all expenses, particularly at shipping port Genoa, have materially increased on account of the long stay of goods waiting for shipment. For a superior, extra quality of Italian talc the price averages now from £4 5s. to £5 per ton, f. o. b. Genoa, but higher prices are anticipated very soon, on account of the ever-increasing expenses.

New York Naval Stores Market

SPIRITS OF TURPENTINE.

The year opened quietly with sales at 45½c. a gallon. The Turpentine Farmers' Association seemed to have control of the bulk of supplies in the South, and this interest was mainly responsible for advancing the market to 47½c. a gallon before the end of January. The advance appeared to bring out a little freer offerings by independent sellers, and in February the association met with more or less competition, with the result that prices declined. By the end of February the market was off 3c. a gallon from January's high point, or 44½c. a gallon. In March improvement in the spring inquiry was materialized, and the buying power was sufficient to restore the market to a 46c. basis. About this time, and especially in April there was a pronounced scarcity of turpentine on spot, due to the preference manifested by Southern steamship companies for green goods over naval stores. The local market was held in scant supply during the entire month. During April also heavy buying took place at Savannah and Jacksonville for export account, and primary prices advanced sharply. The strength in the South, combined with a shortage of local supplies, brought about a firm market in New York, and an advance to 48½c. a gallon was recorded. In May the country's diplomatic crisis was reached by the sinking of the Lusitania. The effect of this incident was to discourage foreign shipping, and New York came in for increased receipts while the market suffered to the extent of 6½c. a gallon or 42c. on spot. Sales were made in June at 44c., and there were well founded reports of a greatly curtailed production due to the unfavorable prices. This, however, failed to stimulate consuming inquiry, and from June until September, the market displayed a declining tendency, the low point being 38c. recorded early in September. Late in this month the market made a recovery to 41c., and from then on the tone became almost buoyant under an advance in the South brought about by good foreign buying and a scarcity of offerings. The highest point of the year was reached in November, when spot sales were reported at 59c. a gallon. From this point there was a ragging tendency until the close, the final quotation being at 54½@55c. a gallon. An actual shortage in production was realized during the year, and while the Turpentine Farmers' Association was dissolved early in the season it is believe that the ideas by this organization were completed, and that the proper results were accomplished. The reduced output is placed at 25 to 30 per cent., and it is asserted that a smaller carry over will be noted in 1916 than ever before. The following table shows the highest and lowest prices of spirits of turpentine at New York for each month from January 1, 1912, to December, 1915, inclusive. The figures are based on the closing quotations each successive week:—

	1912.		1913.		1914.		1915.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan.	54	50½	45½	42½	51	46½	47½	45½
Feb.	51	49½	46½	45½	49½	46½	45½	44½
Mar.	53½	50½	47	41½	50	48	46	44½
Apr.	50	47½	45	42½	48	46	48½	47½
May	52	49½	43½	41	49	46	48	42
June	49½	47½	39½	38½	50½	48	44	42
July	47	46½	39½	38½	50	48½	43	42
Aug.	46½	43½	42	38	47½	42½	42	40
Sept.	43	41	43	41	46	41	41	38
Oct.	44½	42	45	41½	48	45	55	41
Nov.	42	37½	47½	46½	46½	45½	59	57
Dec.	43	38	46½	45½	51	41	57½	54½

ROSINS.

The price movement of rosins was very similar to that of turpentine. Using the common to good strained grade as a barometer, we note that the year opened at $3.70 for a 280 pound barrel. This price was maintained until the end of January when sales were made at $3.60. In February as low as $3.35 was accepted, but in March export buying forced prices up to $3.50. Some concern was felt at this time over reports of restricted shipments to the North of Europe, but in April it was announced that the Swedish Government had come to terms with England, and that imports would be allowed into the former country. This had stimulating effect on prices, and the market rallied to $3.65 by the close of April. Early in May a meeting of the members of the New York Naval Stores Trade was held at the Produce Exchange, and the government glass standards for grading rosins were unanimously adopted and Charles E. Smith, the supervising inspector of the naval stores of the exchange, was instructed to furnish samples wherever they might be required. The resolution formally adopting the government standards also provided that all dis-

A ROMANCE OF BUSINESS

IN Baltimore there is a five-story building that occupies the block bounded by Lombard, Pratt and Concord streets and the Failsway, within whose brick walls are all the odors of the Orient—a riot of sweet smells, a romance of fragrance.

Overlooking the company of water-craft that cluster along the historic street called Pratt, this home of spices, such as the Queen of Sheba brought to Solomon, is modern enough in its outward appearance. But from the salt and oyster smell of the waterfront through the Door of Delight is a leap of thousands of miles and years. One minute the visitor is in Baltimore; the next he is in the heart of the Arabian Nights. And all by the power of imagination he may, if he will, visit the strangely fascinating countries of his dreams and see the little, lithe, brown forms of toilers robbing Nature of its sweets for the pleasure of a world far away as Heaven.

It is the house of McCormick & Co., the largest spice house in America, and one of the most important tea importing concerns south of New York. By every water lane, steamships bring from all quarters of the globe teas and spices, roots and herbs—bring them in tons, where the consumer uses a dainty pinch for flavoring. And within the four brick walls these riches from far lands are dusted, cleaned, ground, tested, weighed, packed and shipped to markets that join the Atlantic to the Pacific, and touch the far North of this continent and the tip end of Florida.

A Romance in Business.

Twenty-five years ago Willoughby M. McCormick and two girls began bottling flavoring extracts and drug specialties in a small way. They bottled them so well, and the market expanded so naturally in consequence, that the business had to grow.

Today, with a five-story building covering a floor space of more than three acres, the firm has not enough room to handle its business and has to provide outside storage.

A Busy Executive.

Willoughby McCormick is a man who might be forty-five or fifty-five, but who has the energy and youth of twenty. His age makes no difference. When he and his two girls started putting things in bottles a quarter of a century ago he was a very young man. Now, as his business has expanded, he has found time and opportunity to be active in many things, all of which have the good of the community as their objective. For instance, he was one of the founders of the Drug Exchange of Baltimore, which until it became an important section of the Merchants and Manufacturers' Association exercised an independent function of great service to the trade. He was also one of the organizers of the Flavoring Extract Manufacturers' Association of the United States, which is one of the most important of all the national trade organizations. His penchant for organizing carried him into the launching of the American Specialty Manufacturers' Association, of which he was the first vice-president; and he has been a member of the directorate and executive board ever since it started. Another national position is in the directorate of the Chamber of Commerce of the United States, in connection with which he has plenty of opportunity to follow his hobby as chairman of the special committee on uniform drug and food regulations. Among his local activities, there may be mentioned that in addition to being a director of the First National Bank of Baltimore, he is also president of the Baltimore Commercial Bank, which was recently organized with a capital of $500,000 and surplus of $100,000. This bank is peculiarly intended for the use of business interests of Baltimore and the Southland, and has a big field to cover.

A Trip Through the Plant.

A journey through the McCormick house would pay any one who desired swift transportation from the humdrum modern business life to the atmosphere of the Far East, with its romance and fragrances. As has been said before, it is a far leap from the waters of the lowly front in Baltimore, twentieth century, to the Kingdom of the Sounds of Odors, where every delight wafted to the nostrils is a song or a poem. In that kingdom there is much machinery, but it never quite displaces the fancy that is there for any quick imagination or the flavor of the Orient.

On the first floor there are the offices, the first inclosure being an information bureau, the second and third offices of the Messrs. McCormick, then the general offices, stenographers and mailing rooms; back of that great storage rooms, filled with tea and imported raw material for spices and extracts. There is on this floor, too, a profit-sharing department, where retailers and jobbers reap the benefits of their energy by gifts of ascending value. This is for retailers and jobbers only and does not extend to the consumer.

On the second floor, fronting on Pratt street, is the sampling room. In cases behind glass doors are long and short, thin and fat, square and round, octagonal and queer-shaped bottles of all kinds. In these bottles are raw materials of every description that enter into the manufacture of the finished product. The pungent odor of vanilla beans, the sweet scent of cinnamon, conflicting yet harmonizing odors of everything from everywhere, welcome the visitor. The exhibit itself is a liberal education. It has just been returned from San Francisco, where the McCormick goods carried away a gold medal for everything shown. Glancing at the shelves, there are paprika pods, Jamaica ginger in twisted roots that look like coral, nutmegs in their shells, pickling spices, mustard seed, pistachio and endless varieties of spices, and even bottles of Dalmatian flowers, from which insect powder is made. The guide, who has the true pride of partnership with his employers, points to sample bottles of orange and lemon extract.

"There is an example of how we obey the law," he says. "The Pure Food law requires 5 per cent. lemon or orange oil. We make it 8 per cent., which is all it will hold in solution, and is 60 per cent. more than the law demands."

A little farther on there is an exhibit of ground spices in cans and bottles, as they are shipped to the retailer. They are all sanitary, hermetically sealed, untouched inside by human hands, as is illustrated later in the journey through the plant.

Where They Taste Tea.

In the center of the room there is a Russian samovar—a splendid piece of copper work that is used for heating water for tea tasting, or more properly, tea "testing." There are about 200 varieties of tea and in this room are tested about fifty. The tea tester does not actually drink. From various little packages of samples he takes just a pinch—enough to balance a slight weight on the apothecary's scales nearby. Depositing this in a cup he pours over it boiling water and allows it to stand awhile. Then he lifts the cup, inhales the steam, compares the odor and strength with standard samples and finally takes a bit of the tea in his mouth, but not to swallow. To actually drink all the tea he tests the expert would needs have the capacity of a camel and none of its regrets.

Machines that Are Human.

From the time the visitor enters the main plant—that is, the part in which the raw product is turned into containers and packed for the market—there is a succession of illustrations of the inventive genius of man. Much of the mechanical equipment was invented and installed by employes, to meet particular needs. The main purpose is always to receive the raw product in the best possible shape, clean it thoroughly, grind and prepare it in such manner as to retain the greatest possible amount of its original virtue and then pack and ship with an eye single to reaching the consumer as it left the factory.

The first room entered is the filling room, where containers are filled by machinery with various grades of teas. There are several rotary machines which at the same time weigh and fill containers, passing them on by a belt conveyor to girls who rapidly handle the finishing touches. Next comes the extract department, where first an automatic labeler turns out 14,400 bottles a day, all properly marked and ready filled before labeling for contents. These are then passed on to rotary filling machines fed from a tank on the next floor above, through a pipe system, with any one of the many extracts manufactured by the McCormick concern. On the revolving table of the machine the bottles stand, coming each in its turn under nozzles which pour contents into 130 gross a day of two-ounce bottles.

Back of this room there is the assembling room, where all the products are brought together to be sent to the packer, and by him dispatched in chutes to the shipping department and dispatched.

Another room contains more than a dozen grinding machines, successors of the old-fashioned revolving stones and designed to keep in all the oils formerly lost in grinding spices. Before the grinding machines came into use any pungent product being treated would send a thick aroma into the free air, which was just so much loss. All this is now saved, and with the grinders pepper could be handled in any quantities and an operator standing at the machine would hardly detect the odor.

In the next room there are vacuum cleaners for seeds, showing up brilliantly in their scrupulously spotless red enamel. Every seed and spice that goes through the mills is first thoroughly cleaned as are also all the teas and herbs, so that when the raw material finally reaches the consumer the finished product is in the cleanest possible condition. In another part of the building there are dusting machines, and in every case all the products being cleaned pass over magnets which attract and hold any metallic substance that may accidentally have found its way in, during handling.

A huge mustard vat finishes the inspection of the second floor. The odor of that mustard is delicious. It is the German kind, ready mixed, that turns the mind to picnics and roasts, and the visitor murmurs:

"What a splendid place to dip a ham sandwich."

More Brains in Belts.

Passing a printing plant, equipped completely to handle all sorts of incidental publication, the visitor reaches the stairway to the third floor, and ascending finds rotary machines and belt conveyors actually using brains to do the work of many hands. There is a machine, for instance, in two parts that does everything but sell the product. In one end a boy feeds flat cardboard knockdown boxes. The machine grips, bends, folds, pastes all but one open end and passes the box down a belt under a hopper which automatically feeds the exact measure of contents. Then the conveyor continues, carries the package around to the second half of the machine, and that half takes the package, closes and secures it and delivers it to the packer.

You have seen pepper and bought it, delivered by the grocer in neat tin boxes, but you probably never realized how a machine weighs, fills, caps and assorts with unerring accuracy. Here, again, are rotary machines, the tables carrying many boxes under the hoppers for filling and passing on to inspectors, who check, weigh and inspect the contents. From the machine each tiny box goes by conveyor to the next man, who puts each under a stamping arm which fastens the tin lid on securely. Then up a bucket belt and down a chute to the next room, where girls pack them, one girl handling as many as 20,000 cans a day. The first machine will fold, paste, fill and lock 15,000 pasteboard cartons in a day. The second and third machines will weigh, fill, cap and deliver, respectively, 40,000 and 30,000 lithographed tins a day.

In the handling of perishable stuff, such as mayonnaise dressings, inventive genius had discovered an instantaneous and effective device by which a machine for capping bottles that have been filled will at the same time exhaust all air. There is no limit on the time that such packing would preserve the dressing.

Everywhere, on every floor, in every room, there are bottles of distilled water—nothing else is used. Every precaution is taken to preserve the original strength of the product in the first place, and having preserved it, not to spoil it. For instance, the machine to chop vanilla beans succeeds the former grinder, which, it was discovered, created enough frictional heat to spoil the flavor. And in vanilla extract, quality of flavor is the one and indispensable consideration. In this department, too, continuous percolation by a series of tanks has succeeded former methods. The beans go into the first tank and by percolation the extract passes over and over again through the system, until the net result is quality. After leaving the percolators there are white-oak casks in which the extract is aged for two years before it reaches the bottles.

At the bottom of it all—the essence of manufacture—is the laboratory, where experts analyze and test with patient care, to make sure that nothing goes through below the standard of the house of McCormick. And after a visit to this department, the visitor understands what Willoughby M. McCormick meant when he said:—

"We want to stay close to the consumer—close to the people who use our goods. We want every buyer to be a personal customer. And to be that, we must give them purity plus quality."

With such a house, and such a record, the salesmen who meet annually can go out from Baltimore to all quarters of the country and sell goods that have upon them the stamp of excellence. The most recent meeting was at a banquet at the Emerson Hotel, Thursday, December 16, at which 100 covers were laid. Mr. R. A. McCormick was toastmaster.

And the house of McCormick, wherever the Bee Brand and Banquet Brand brighten the counters of the dealer or peep from the shelves of milady's kitchen, is proud of the fact that its own brand is "Baltimore."

—Advertisement.

Mc. CORMICK & CO'S EXECUTIVE AND SALES FORCE DECEMBER 1915

THE HOUSE BEHIND THE GOODS—McCORMICK BLOCK.

putes arising thereunder shall be settled in accordance with the rules of the New York Produce Exchange. By the end of May the buying power seemed to have spent its force, and the market developed a heavy tone, with prices settling to $3. Late in June a recovery to $3.25 was recorded, and this basis was maintained until September. Early in September stocks became relatively low and sellers experienced less difficulty in advancing prices. From September until the end of November prices hardened, the highest point being established in November, when $5.95 was paid. Business quieted down before the holdings, and prices declined to $5.80 per barrel. In the following table is given the lowest and highest price of common strained rosin in the local market for each month during the past year, and for 1914 and 1913. Prices are based on the closing quotations each week and represent the unit of 280 pounds:—

	1913		1914		1915	
	Low.	High.	Low.	High.	Low.	High.
Jan.	$5.75	$6.35	$4.00	$4.40	$3.60	$3.70
Feb.	5.95	6.50	4.25	4.40	3.35	3.50
Mar.	5.75	6.50	4.25	4.29	3.35	3.50
Apr.	4.75	5.75	4.20	4.10	3.50	3.50
May	4.75	4.75	4.20	4.20	3.20	3.65
June	4.25	4.40	4.20	4.20	3.00	3.25
July	4.00	4.50	4.20	3.90	3.25	3.25
Aug.	4.20	4.30	4.00	3.75	3.25	3.25
Sept.	4.05	4.20	3.75	3.75	3.40	3.55
Oct.	3.90	4.00	3.75	3.75	5.65	4.50
Nov.	4.00	4.10	3.75	3.75	5.25	5.95
Dec.	4.10	4.10	3.75	3.70	5.80	5.95

TAR.

A normal movement of kiln burned and retort tar was noted during the year 1915. The market opened firm at $6 per barrel, sold down to $5 in March and up to $5.25 in September. During the last quarter of the year stocks became lighter and the market hardened to $6 in October, while small quantities in November and December brought as high as $6.50. The following table shows the highest and lowest in the New York market for kiln-burned tar in oil barrels, of fifty gallons, for each month from January, 1912, to December, 1915, inclusive:—

	1912.		1913.		1914.		1915.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan.	$5.75	5.75	$6.75	6.25	$7.75	7.50	$6.00	6.00
Feb.	5.75	5.75	6.75	6.25	7.50	7.00	6.00	6.00
March.	5.75	5.75	6.75	6.25	7.00	6.75	6.00	5.00
April	5.75	5.75	6.75	6.25	7.50	7.00	5.00	5.00
May	5.75	5.75	6.00	5.75	7.50	6.75	5.00	5.00
June	5.75	5.75	6.25	6.00	7.25	6.50	5.00	5.00
July	5.75	5.75	7.50	5.75	6.75	6.00	5.00	5.00
Aug.	5.75	5.75	7.50	6.50	6.50	6.50	5.00	5.00
Sept.	6.25	5.75	8.00	7.00	7.00	6.50	5.25	5.25
Oct.	6.25	6.25	7.50	7.00	7.00	6.50	6.00	5.25
Nov.	6.25	6.25	8.00	7.25	7.00	6.50	6.50	6.00
Dec.	6.75	6.50	8.00	7.75	6.50	6.00	6.50	6.00

SAVANNAH PRICES.
TURPENTINE.

The following table contains the high and low prices for spirits of turpentine at Savannah for each month during 1915. The price represents the closing figure each week and is on the gallon basis:—

	High.	Low.
January	$0.44½	$0.42½
February	.43¾	.41¾
March	.42½	.42
April	.45½	.44½
May	.45¼	.38
June	.42½	.38½
July	.39¾	.39½
August	.39½	.37¼
September	.37¾	.36
October	.51	.38¾
November	.57	.52
December	.54	.51
Year	.57	.36

Visible supply at beginning of season, April 1, 1915, at Savannah, 22,666 barrels, compared with 12,018 barrels for the same period, 1914. Supply December 31, 1915, was 15,888 barrels, compared with 35,993 barrels same time 1914.

ROSIN.

The high and low prices for B rosin for the year 1915 are tabulated below. Quotations are based on the closing figures each successive week and represent the cost per 280-pound barrel on spot.

	High.	Low.
January	$3.20	$3.12½
February	3.20	2.95
March	3.00	2.90
April	3.25	3.00
May	3.30	2.65
June	3.05	2.55
July	3.05	2.90
August	2.90	2.08
September	3.25	3.00
October	4.30	3.32
November	5.50	4.60
December	5.60	5.15
Year	5.60	2.65

Visible supply at Savannah at beginning of crop season, April 1, 1915, was 105,333 barrels, compared with 110,425 barrels same time in 1914. Supply December 31, 1915, was 75,439 barrels, compared with 150,283 barrels same time in 1914.

LONDON NAVAL STORES.
Turpentine.

The year 1915 proved a better one for this article than many ventured to hope at its opening.

There was a time of depression—and very unnecessary depression—in the summer, when prices could not be lifted out of the ruck of 33s. 9d.@35s. 9d. here and 36c. to 39c. in Savannah.

In vain it was pointed out to the consumers that these prices were too low, especially the London quotations; because the charges on importing into the United Kingdom were on a very much higher scale than heretofore. Freights had trebled or quadrupled, insurance had more than doubled, exchange was unfavorable to Great Britain, as compared with 1913 and 1914—moreover, it was abundantly evident that the 1915 crop in the United States was considerably smaller than the reduced 1914 crop.

In mid-October London awoke to the facts of the situation and prices rose briskly to 43s., but not so furiously as at Savannah, where 57c. was touched on November 12. At this price Savannah stood still awhile and then fell to 50½c., recovering to 54c. by December 31.

But laggard London made up for past hesitation by rushing prices upward, almost without a break, from 43s. on November 23 to 54s. on December 31. This price will doubtless drag turpentine away from the United States to the United Kingdom and freight will be found somehow or other. Indeed, since the close of 1915 it appears that freight room has been found for 5,600 barrels for London by the Hardanger. This price will also attract French and Spanish turpentine to London.

The Spanish imports to London during 1915 are most striking, 3,337 tons, about 20,500 barrels, of which there remained in stock in London alone nearly 7,500 barrels on December 31. The reason is that Spain's usual outlet—Central Europe—was almost wholly closed to her.

The prevalent high prices for both turpentine and rosin insure increased crops in the United States and Spain in 1916. France and Russia cannot, we fear, hope to produce more in 1916 under present labor conditions.

Rosin.

The year 1915 ended with some wonderful prices for low grades; 22s. ex wharf London was freely paid for "G," a record since the War of Secession. This is primarily due to the abnormal demand for munitions from nearly all the countries of the world.

A striking feature in our British imports is the vast quantity France has sent us—nearly 38,000 tons, or more than double the quantity we have ever received from France before. It represents, largely, pent up rosin, due to Germany, Austria and Russia and the Danube—rosin bought for future delivery early in 1914!

The following table gives the average price of turpentine for each year from 1900 to 1915:—

	s.	d.		s.	d.
1900	35	4	1908	31	9
1901	37	1	1909	33	11
1902	33	1	1910	47	8
1903	42	2	1911	47	9
1904	41	2	1912	33	1
1905	45	7	1913	30	1
1906	47	3	1914	33	0
1907	44	3	1915	38	5

Average of 16 years, 38s. 2½d.

The total exports of turpentine from France, in tons of 1,000 kilos, were:—

	Kilos.
1909	9,220
1910	10,954
1911	10,210
1912	7,956
1913	11,486
1914	Not obtainable
1915	Not obtainable

The total exports of turpentine from the United States were as follows (N. B.—The American crop year begins April 1 and ends March 31; 320 American gallons, calculated as one English ton, equals 1,016 kilos):—

1912-13.	1913-14.	1914-15.	1915-16.
Tons.	Tons.	Tons.	Tons.
63,957	59,027	36,914	.....
*46,580	*41,898	*25,952	*22,285
†17,377	†17,129	†10,962	.....

*Seven months, April-October.
†Five months, November-March.

Analysis of the imports of turpentine into Great Britain from all countries:—

	1913. Tons.	1914. Tons.	1915. Tons.
United States	23,820	14,725	20,902
France	1,083	975	2,025
Portugal and Spain	295	271	3,337
Russia, Scandinavia, etc	1,769	1,210	211
All other foreign countries	450	229	...
Tons of 1,016 kilos	28,017	17,410	26,475
Percentage from United States	85.02	84.57	78.95
Percentage from France	6.00	5.60	7.65
Percentage from Russia and Baltic	6.32	6.95	.80
Percentage from all other countries	2.66	2.88	*12.60

*In 1915, entirely from Spain and Portugal.

Stocks of turpentine in London at the end of the last three years were:—

	1913. Bbls.	1914. Bbls.	1915. Bbls.
American	56,253	22,148	32,952
French	4,224	1,378	1,341
Spanish, etc	374	340	7,486
	60,851	23,866	41,779
Afloat	4,000	....	....
	64,851	23,866	41,779
	s. d.	s. d.	s. d.
price in London	32 6	36 3	54 0
Price in Savannah	42¾c.	42½c.	54c.

The year 1915 has seen prices which are records in rosin since the American War of Secession, 22s. per cwt. ex wharf London having been paid in December for strained rosin; 12s. 3d. was the price ex wharf London on October 1, a rise of over 81 per cent. in three months.

This was due to pressing demands for export, and to the new demand for munitions—we say new, for, on the present scale of consumption, this is practically a new outlet.

The following table gives the average price of strained rosin for each year from 1900 to 1915:—

	s.	d.		s.	d.
1900	5	3	1908	8	4
1901	4	9	1909	8	8
1902	4	8	1910	12	9
1903	6	1	1911	16	4
1904	7	11	1912	16	6
1905	9	1	1913	11	9
1906	10	0	1914	9	6
1907	10	5	1915	13	5

Average of 16 years, 9s. 8½d.

The table below gives the total exports of rosin from France, in tons of 1,000 kilos:—

	Kilos.
1910	55,751
1911	58,789
1912	70,038
1913	43,497
1914	Not obtainable
1915	Not obtainable

The total exports of rosin from the United States, in tons of 2,240 pounds, or 1,016 kilos net weight (the American crop year begins April 1 and ends March 31), were:—

1912-13.	1913-14.	1914-15.	1915-16.
Tons.	Tons.	Tons.	Tons.
253,072	262,673	146,453	.....
*151,785	*163,125	*104,335	*86,387
†101,287	†99,548	†42,118	.....

*Seven months, April-October.
†Five months, November-March.

Analysis of the imports of rosin into Great Britain from all sources:—

	1913.	1914.	1915.
United States	66,651	53,907	52,931
France	9,672	16,182	37,856
Spain and Portugal	8,350	6,224	10,579
All other countries	3,230	1,090	1,047
Total tons of 2,240 lbs., 1,016 kilos	87,903	77,403	102,413
Percentage from United States	75.82	69.64	51.68
Percentage from France	11.00	20.91	36.97
Percentage from other countries	13.18	9.45	11.35

United States Petroleum Industry Review

Production.

	1915. Barrels.	1914. Barrels.
New York-Pennsylvania	7,114,570	7,424,597
West Virginia	9,150,866	10,459,733
Southeastern Ohio	4,068,047	4,552,441
Kentucky-Tennessee	479,366	516,110
Lima, Indiana	3,979,467	4,603,275
Illinois	15,588,493	19,330,245
Oklahoma-Kansas	121,998,915	101,002,363
Gulf Coast	22,96,779	11,986,000
Texas Panhandle	1,591,422	8,513,367
Caddo Fields	15,940,393	12,507,436
California	89,768,208	102,871,907
Wyoming	5,164,737	4,360,000
Miscellaneous	200,000	180,000
Totals	301,872,208	287,119,667

The above figures represent the actual production totals, covering both the marketed and storage stocks, based on pipe line and field records. The estimates of the United States Geological Survey placed the 1915 marketed output at 267,400,000 barrels, with the storage stocks given as about 24,000,000 barrels, a total of 291,400,000 barrels, comparing with 290,312,535 barrels for 1914, of which 24,550,000 barrels represented the storage amount.

The stocks of crude petroleum held by pipe line companies at the end of 1915 amounted to approximately 195,000,000 barrels, including the oil retained in storage by certain oil companies that conducted a pipe line business at the beginning of the year, but which business was taken over and later conducted by separate pipe line companies. This reserve is approximately 50,000,000 barrels greater than at the end of 1914.

1915 Field Operations.

	Completions.	New production, bbls.	Dry.	Gas.	Average new well, bbls.
Pennsylvania	4,093	39,063	806	548	10.98
Central Ohio	945	1,656	189	714	25.14
Lima	262	4,696	37	..	20.87
Indiana	194	2,564	94	..	26.43
Kentucky	104	977	44	..	16.30
Tennessee	12	250	8	..	62.50
Illinois	755	14,055	197	18	26.01
Okla.-Kan.	5,848	796,634	1,003	731	183.64
Texas-La.	1,625	593,485	485	66	552.60
Totals	13,768	1,691,859	2,052	2,017	174.44

1914 Field Operations.

	Completions.	New production, bbls.	Dry.	Gas.	Average new well, bbls.
Pennsylvania	3,908	39,956	1,047	631	9.04
Central Ohio	763	1,745	293	420	37.94
Lima	591	9,318	86	..	18.45
Indiana	753	8,477	272	..	17.83
Kentucky	179	1,570	60	..	13.11
Illinois	1,583	39,237	385	..	32.75
Okla.-Kan.	10,659	988,851	1,997	853	120.60
Texas-La.	1,716	372,083	203	79	259.47
Totals	22,152	1,461,237	3,953	1,953	90.11

The dominating event of last year's production records is the increase of nearly 20 per cent. in the Oklahoma-Kansas fields, the greater part of which may be credited to the Cushing pool, probably the richest and most spectacular development in the history of the country's petroleum industry. The wonderful resources of this pool were exploited on the Bartlesville sand production late in 1914, and by the latter part of April, 1915, the daily output approximated 300,000 barrels, resulting in an unsettlement of the entire industry, with bearing results on all crude and refined products. The effect of the unsettlement was emphasized by the relatively high grade character of Cushing crude. It was inevitable that the field's production would sooner or later yield to the tremendous tax, and the decline from the high record was gradual over the balance of the year, about 100,000 barrels being the daily average total at the close. During the last three months of 1915, the Healdton pool in Carter county was developed at a more successful scale and its daily output was increased from about 25,000 barrels to 75,000 barrels. The completion of a 700-barrel oil well of a wildcat test on the Alberti farm, five miles northeast of Blackwell, in Kay county, in July, was regarded as a possible forerunner of an important pool of oil and gas on the Blackwell anticline. Other localities in Oklahoma that furnished evidence of developing oil pools of consequence in 1915 were Vera, Washington county; South Coffeeville, Nowata county; Stone Bluff, Wagoner county; Holdenville, Hughes county, and the Fox lease, four and one-half miles south of the Cushing field in Creek county.

In Kansas active development centered in the Augusta pool, Butler county. In October a wildcat test near El Dorado, in the same county, yield wells of 3,000 barrels' capacity from apparently the same formation as in the Cushing pool. The potential output of the Augusta pool is 7,000 barrels a day. The various pools in Chautauqua, Montgomery, Franklin and Miami counties displayed only nominal activity.

Despite the drilling mania at Cushing, the 1915 record of mid-continent completions showed a decline, 5,484, as against 10,653 in 1914. There was also a loss in new daily production from 994,951 to 796,634 barrels. Declines are noted in the number of dry holes by 595 and in gas wells by 108.

For the first time in recent years California has had to yield first place in the production record, its output last year being 13,146,131 barrels below the 1914 total. The heavy loss was in the Midway-Sunset field, 9,787,490 barrels. The best showing was in the Santa Maria fields. As a result of the overproduction of petroleum in 1914, field activity in California was reduced to the lowest practicable minimum in 1915, a stern shutting down field policy having been observed. In the Midway-Sunset district the last of the big gushers (the Miocene No. 2, inherited from 1914, ceased flowing in March, and from that time to the end of 1915 no wells of corresponding size were completed. North of McKittrick a new field of 35-degree Baume oil was opened by well No. 4 of the Belridge Oil Company, which was completed April 8 at a reported depth of 4,000 feet. Other wells were started on adjoining sections, but the extent and value of the field remained unproved at the end of 1915. At Colinga the deepening of an old well in the white oil district, adjacent to Oil City, in December, was attended with such favorable results that a revival of activity in this area was assured. The oil fields south of the Tehachipi range displayed more activity in 1915 than the San Joaquin Valley fields. In the Coyote Hills, north of Fullerton, a number of flowing wells were completed, and to the northeast in La Habra Valley, near Brea and Placentia, developments were equally successful, though retarded considerably in the latter district by water troubles. A small refinery began operations at Fillmore, Ventura county, in September.

There were 334 new wells drilled in California during the year, bringing the number of producing wells to 6,196. The record of abandoned wells was 176.

Among the coastal pools of Texas and Louisiana Humble in the former State retained its rank of first in activity and in production. Interest was centered in the Stevenson and Landslide leases southeast of the old field, where a number of gusher wells penetrating the deep sands increased the output of the field from 35,000 barrels a day in August to 75,000 barrels a day in October and November. Unsuccessful attempts were made to extend the productive area of the Sour Lake field to the north and to the west. In the Saratoga, Batson, Goose Creek and Markham pools no developments of consequence were reported. At Spindletop the deep test west of the old development begun by the Gulf Production Company in November, 1914, was completed on June 9, 1915, at a depth of 4,720 feet without a discovery of oil or gas in paying quantities.

In Louisiana the Edgerly pool attracted a fair degree of activity without notable extensions of the productive area. Vinton was extended toward the south in July. Jennings, Welch and Anse la Butte were featureless.

The Pennsylvania output, including the extension of the area into New York, was marked by a decline of 310,027 barrels, based on pipe line statistics. The upward turn in crude values was experienced too late to inspire a stimulus to work that was calculated to result in material improvement in the yield of territory that had been subjected to such persistent development during the earlier stages of the industry. Drilling was chiefly of a routine character. The bulk of the field activity consisted as usual in keeping the old wells producing to capacity by cleaning, deepening to lower "sands" or plugging back to neglected "sands," and in the occasional completion of a new well where lease conditions would permit. Many wells that could be profitably operated with oil at $2.50 a barrel were plugged and abandoned as a result of the low prices for oil in the latter part of 1914 and the greater part of 1915.

In field work a decline of 964 completions is noted, distributed among the Clarion-Venango, Southwest Pennsylvania, Bradford, middle and Allegheny fields, the Butler-Armstrong field being the only one to register an increase. The new daily production for last year was, however, heavier by 2,532 barrels, prineipally from the Butler-Armstrong field. Decreases were shown of 77 gas wells, and of 68 dry holes. The Dorseyville field of Allegheny county was the big development of the year in the State. The initial strike was a 900 barrel well in Sep-

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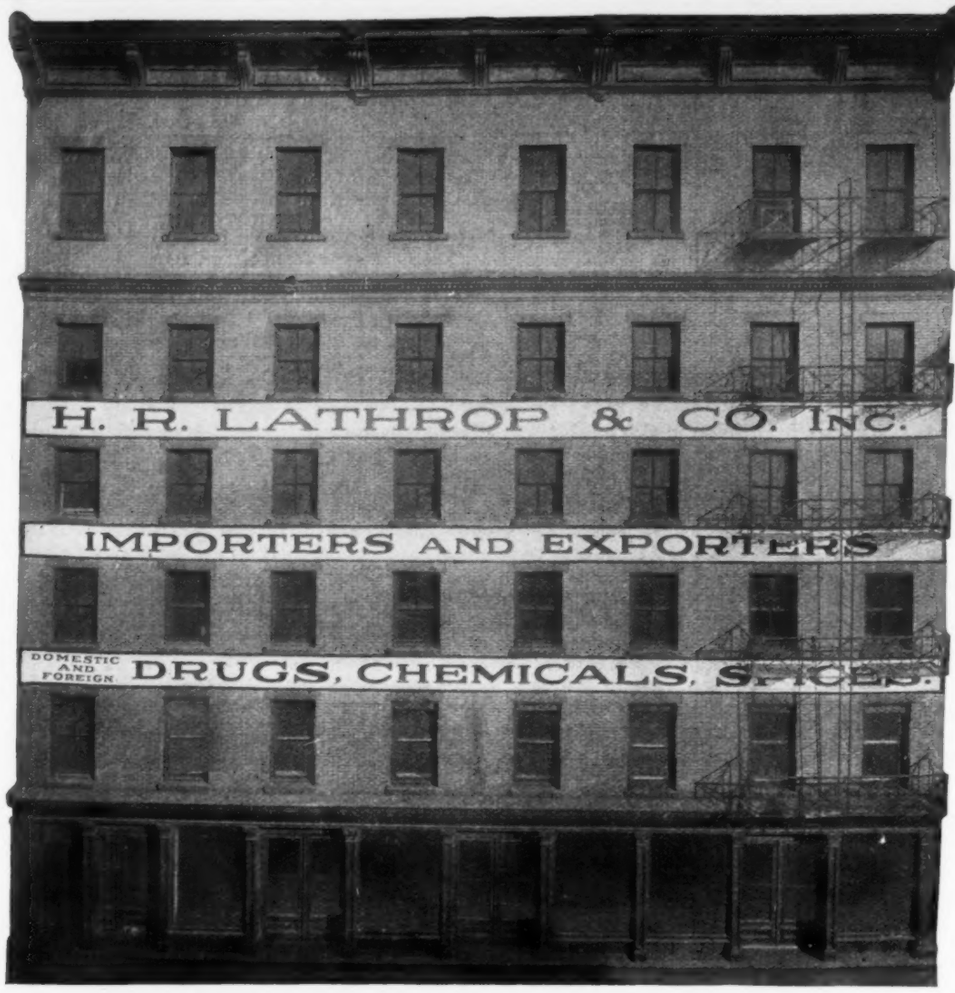

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tember in a district that was believed to have been thoroughly defined by drilling of many years ago. The following month a well coming in at the rate of 1,050 barrels rewarded operations, and other completions showed capacities of from 100 to 800 barrels a day.

The drilling of a well on the Lutheran Church lot at Evans City, Butler county, and its completion as a 125,-barrel producer in the third sand in May, was the signal for a frantic town-lot development that resulted in the rapid exhaustion of a small pool of oil, overlooked in the development of the region forty years ago.

Near East McKeesport in Allegheny county a gas well estimated at 45,000,-000 cubic feet open flow was completed on the Spiegel farm in July, and furnished an incentive for additional drilling that was attended with indifferent success.

The comparisons of West Virginia field operations for the last two years show a decline of 506 completions, 11,-596 barrels of new daily production, 85 gas wells and 93 dry holes. Kanawha county contributed by far the best results in the Cabin Creek district. There were three new wells starting at 600 barrels each, while a number of completions showed initial capacities of from 100 to 400 barrels. The only other results of importance were in Wetzel, Roane, Wirt, Clay and Harrison counties. West Virginia is generally regarded as the most promising field for test operations, and under the unusual spur to work in advance of the defined territory, the odds are believed to favor the opening of new districts as soon as the most trying weather difficulties are weathered.

The return of Tennessee to the ranks of the oil-producing States comprised a feature of much interest in the Appalachian region. In April a fifty-barrel well was completed at a depth of 1,700 feet (pay "sand" at 945 feet), four miles northwest of Oneida, Scott county, near the Kentucky boundary. At the end of the year the "Oneida field" was credited with more thn six active oil wells and Tennessee's place among the oil-producing States was assured. The discovery of a 200-barrel well in the old Irvine field, Estill county, Kentucky, aroused considerable interest in development work in that locality late in the year, marking a valuable extension of the producing area. The main fields of Kentucky in Wayne, Wolfe, Morgan and Lawrence counties contributed no unusual results to the year's record. There was a decline of 87 completions during the year in Kentucky, with a loss in new daily production of 842 barrels and a reduction of 24 dry holes. Wayne county attracted principal activity and registered the largest new production. Tests in Davies and Webster counties resulted in dry holes. The Tennessee field record comprised 12 completions, a daily production of 250 barrels and 8 dry holes, all in Scott county.

Southeastern Ohio field returns for 1914 mark a decline of 330 cocmpletions, 2,934 barrels of new daily production, 51 gas wells and 92 dry holes. There was a notable spurt in development work the last two months of the year under the bullish course of the crude market. There were 30 new wells drilled during the year starting at 100 or more barrels a day. The best results were from the deep Clinton sand fields. The featuring strike were two 350-barrel wells in Hocking county, which was also the scene of several completions, ranging from 200 to 290 barrels.

In the Central Ohio gas fields there was a gain of 184 completions, of which 124 were gas wells, with an increased output of 552,631,422 cubic feet. The largest wells were drilled in the Cleveland field. Hocking county was the scene of the best oil wells, December marking a record of six completions starting with a daily total of 630 barrels.

There was a heavy loss in the Northwestern Ohio results last year—601 completions, 4,732 barrels of new daily production, 6 gas wells and 43 dry holes. The average daily production of the 224 oil wells was 20½ barrels. Wood county was the mainstay of the section during the year; its best completion was a 170-barrel well. Seneca county contributed the featuring results, two wells coming in at the rate of 500 and 350 barrels. There were 663 abandoned wells in the year's record.

Indiana sustained the heaviest setback during 1915 among the eastern fields, the loss in completions being 552, while the new daily production was reduced 3,956 barrels, with a loss of 6 gas wells and of 172 dry holes. The producing wells numbered 97, showing a daily average of 25 1-6 barrels. Sullivan county attracted principal activity during the year, although the practical defining of the field dulled much of the interest stirred the former year. There were seven wells in Sullivan county coming in at more than 100 barrels a day. Other notable results were three wells in Riley county ranging from 100 to 115 barrels a day. During the year 721 wells were abandoned.

In Illinois the year's field results were the lightest since 1905, the loss in completions being 827, with a decline of 31,182 barrels in new production, of 14 gas wells and 158 dry holes. The weakening course of the crude market early in the year was the occasion for the setback in field work, but with the turn in crude there was a marked spurt to operations. Crawford county held the lead in completed work, but Lawrence county held the record for new production.

In Southeastern Illinois the "shallow sand" fields of Clark, Cumberland, Coles and Edgar counties and the "deep sand" fields of Crawford and Lawrence counties failed to show productive extensions of sufficient value to retard the normal decline in output of the older portions of the fields. In Wabash county a wildcat well reported good for eight barrels of oil, completed early in December, three miles southwest of the Allendale pool, furnished an incentive for further drilling in what may prove to be a new pool. The Colmar field, McDonough county, in the western part of the State, was extended to the southwest in July by the discovery of a 150-barrel well on the Hamm farm in section 19. Lamoine township, by efforts to extend the productive area still farther west into St. Mary's township, Hancock county, were unsuccessful.

Operations on the "Staunton dome" in Macoupin county, resulted, early in June, in the opening of a prolific gas field about four miles southwest of Staunton in Dorchester township. Development work was, however, considerably retarded by litigation between the oil and coal companies, whose interests conflicted in this locality. Activity was slight in the Sandoval pool, Marion county, and in the Carlyle pool, Clinton county. Unsuccessful tests of interest were drilled near Hillsboro, Montgomery county, and at Rushville, Schuyler county, in areas of apparently favorable geologic structure.

The record of new wells of 100 or more barrels capacity during the year was 48. There were 155 abandoned wells in the year's record.

Last year's total production for Louisiana amounted to 18,379,921 barrels, representing an increase of 4,-070,486 barrels over the former year. The big gain is credited to the Red River parish, chiefly from the Crichton district. The Caddo output practically held its own last year. Wildcat operations were reported the most active in the history of the field, but no unusual results were encountered. The most encouraging strikes were in gas territory near Shreveport and in the De Soto and Red River parishes. The feature of the year was the extension of the pipe line facilities. During last year there were 595 new wells drilled, of which 464 were oil, 35 gas and 96 were dry holes, with the oil production amounting to 207,399 barrels. This represents an increase of 11 completions, 16 oil wells, 7 dry holes and 102,736 barrels of new production. The only decline was in the gas wells by 12.

The Gulf coast field produced 20,310,-472 barrels during 1915, a gain of 7,192,-944 barrels for the year. Practically all of the increases came from Humble. There was a slight gain in the Edgerly output, while Sour Lake registered a decline of over a million barrels. The most important among the new developments during the year was the field in Williamson county, near Thrall, which was credited with 1,000,000 barrels of 42 gravity oil. West Columbia and Damon Mound, in Brazoria county, and Davis Hill, in Liberty county, were regarded as the most promising prospective fields at the close of the year. There were 740 new wells drilled during the year, of which 460 were oil and 280 gas, with a total of 424,236 barrels of new daily production. This record shows an increase of 176 completions, 47 oil wells, 129 dry holes and 181,960 barrels of new daily production.

The petroleum output of Wyoming was materially increased in 1915 as the result of the completion of a 6-inch gravity pipe line by the Illinois Oil Company from the Grass Creek field in Hot Springs county to the Burlington Railroad at Chatham, and of the opening in September of a prolific southwestward extension of the old Greybull field on town lots in the city of Greybull, Bighorn county. A monster gas well estimated at 20,000,000 cubic feet capacity, open flow, was brought in on the Byron anticline in northwestern Bighorn county late in September.

The most important development of the year in Wyoming was the opening of a new oil field on the Silvertip anticline in northeastern Park county, along the Montana boundary. The first well in this field was completed in November at a reported depth of 1,100 feet. The initial flow was estimated at 400 barrels. A number of equally good wells were completed on this fold before the end of the year, not only in Wyoming, but across the State boundary in Carbon county, Montana, as well.

In Fremont county, Wyoming, activity in the fuel oil field, opened in 1914 near Lander, was revived late in 1915, and three productive wells were completed before the end of the year.

At Havre, Hill county, Montana, additional tests, inspired by the moderate flows of gas obtained in 1914, resulted in the completion of one well east of the city in November, which was estimated to be capable of yielding 15,000,000 cubic feet of gas a day. Distribution of this gas to consumers in Havre was commenced before the end of the year.

In Colorado, wildcat activity in a number of localities failed to discover oil, and the State's production continued to be derived from the declining Florence, Boulder and Rangley fields. No production was reported from Utah. Tests in Washington, Oregon, Arizona and on the "Eastern Shore" of Maryland failed to justify the hopes of the drilling companies.

THE CRUDE MARKET.

Last year's developments in the crude market were the most significant in late years, marking a complete turn in the industry's fortunes from the depression of 1914. There was a suggestion of a turn from the unsettling influences of the excessive Oklahoma production and the restriction upon refined export trade by a slight advance in the high grade Eastern oils the first week of the year, but this was not destined to be of enduring effect until early August, when mid-continent crude scored an advance on the declining output. The mid-continent market, determined to an overwhelming extent by the course of the Cushing field, has for about fifteen months held the balance of power of the country's general petroleum destinies, and so long as the boundless resources at Cushing were permitted to be taxed to such unsparing limits, in one of the most frenzied drilling campaigns in the country's industry, there could be no reasonable hope for relief from the general impairment of fortunes. The effect was emphasized by the restrictions and complications attending the foreign refined trade during the last year.

The Pennsylvania oils responded most effectively to the reactionary forces and were regarded as again established in their prestige as the barometer of the crude market.

Within a few days after the turn in mid-continent oil nearly every crude variety was in line for the upward movement and advances have been the rule over the last five months of the year. In several of the items new high records have been established, including Somerset and Ragland, Ky., Princeton, Ind., Illinois, light, mid-continent, Corsicana, Texas, light and heavy, Electra and Henrietta, Texas, and Caddo, La., light and heavy.

The year's crude developments have inspired a much more buoyant spirit throughout the country's industry, and a new measure of confidence was imparted to operations at the maintenance of the market's recovering pace. While the opportunities for the discovery of new fields of consequence are sparing in the Eastern sections, the recovering course of crude values is calculated to inspire new zest in wildcat operations, with the possibility of a rare strike, but of probably more practical effect it will be likely to result in the cleaning up of the old pumping wells, with an aggregate of no mean proportions to the production.

A comparison of last year's opening and closing quotations follows:

EASTERN STATES.

	Per barrel—Opening.	Closing.
Pennsylvania	$1.45	$2.25
Cabell, Pa.	1.05	1.78
Mercer, black	1.02	1.75
New Castle, Pa.	1.02	1.75
Corning, Ohio	.85	1.75
Somerset, Ky.	.85	1.63
Ragland, Ky.	.65	.75

CENTRAL WEST.

	Per barrel—Opening.	Closing.
Wooster	$1.15	$1.50
North Lima, Ohio.	.93	1.33
South Lima, Ohio.	.88	1.33
Indiana	.88	1.18
Princeton, Ind.	.89	1.47
Illinois	.89	1.47
Plymouth	..	1.33

OKLAHOMA-KANSAS.

	Per barrel—Opening.	Closing.
All grades except Healdton	$0.55	$1.20
Healdton, 32 deg. and above	.50	.60

NORTHWESTERN LOUISIANA.

	Per barrel—Opening.	Closing.
Caddo, La., 38 deg. and above	$0.80	$1.20
35 to 37.9 deg.	.70	1.10
32 to 34.9 deg.	.65	1.05
heavy	.45	.75
De Soto	.80	1.10
Crichton	..	.85

NORTH TEXAS.

	Per barrel—Opening.	Closing.
Corsicana, light	$0.55	$1.20
heavy	.50	.60
Electra	.55	1.20
Henrietta	.55	1.20
Strawn	..	1.05
Thrall	..	1.05
Moran	..	1.05

GULF COAST.

	Per barrel—Opening.	Closing.
Humble	$0.35	$0.50
Saratoga	.40	.50
Sour Lake	.40	.50
Spindletop	.40	.50
Batson	.30	.50
Vinton	.40	.60
Dayton	.45	.50
Goose Creek	.40	.50
Jennings	.40	.45
Markham	.40	.50
Edgerly	..	.50

CALIFORNIA OPENING QUOTATIONS.

Kern River, Midway-Sunset McKittrick, Lost Hills—Bilridge, Coalinga—	
14 to 20.9 deg.	$0.37½
21 to 26.9 deg.	.60
27 to 30.9 deg.	.90
31 and lighter	.75
Ventura county—	
21 to 26.9 deg.	.50
27 to 30.9 deg.	.60
31 and lighter	1.00
Fullerton and Whittier—	
18 to 20.9 deg.	.40
21 to 26.9 deg.	.42½
27 to 30.9 deg.	.52½
31 deg. and over	.60
Santa Maria—	
20 deg.	.40
30 deg.	1.00
Salt Lake-Los Angeles—	
18 deg. and less	.60
28 deg. and over	.85

CALIFORNIA CLOSING QUOTATIONS.

Kern River, Midway-Sunset, McKittrick, Lost Hills, Belridge, Coalinga—	
14 to 17.9 deg.	$0.43 ..
18 to 18.9 deg.	.45 ..

Prices are 1c. higher per barrel for each increase in gravity of one full degree above 18 degrees.

Ventura county—	
25 to 25.0 deg.	$0.67 ..

Prices are 1c. higher per barrel for each increase in gravity of one full degree above 18 degrees.

Fullerton and Whittier—	
14 to 17.9 deg.	$0.48 ..
18 to 18.9 deg.	.49 ..

Prices are 1c. higher per barrel for each increase in gravity of one full degree above 18 degrees.

Canada	$1.33	$1.73

CANADA.

Petrolia	$1.63	$1.33
Oil Springs	1.73	1.40

The year's crude market changes follow:—

FIRST GRADE PENNSYLVANIA

Jan. 1	$1.45	Oct. 7	$1.75
4	1.50	27	1.80
Mar. 15	1.45	Nov. 5	1.85
20	1.40	15	1.90
April 3	1.35	18	2.00
Aug. 13	1.45	Dec. 3	2.10
17	1.55	17	2.15
24	1.60	30	2.25
Sept. 13	1.65		
27	1.70		

CABELL, PA.

Jan. 1	$1.05	Sept. 13	$1.25
4	1.10	27	1.30
Mar. 15	1.05	Oct. 27	1.35
20	1.00	Nov. 5	1.40
April 3	.91	15	1.45
Aug. 13	1.07	18	1.55
17	1.17	Dec. 3	1.65
24	1.20	17	1.70
		30	1.78

MERCER BLACK AND NEW CASTLE, PA.

Jan. 1	$1.02	Sept. 13	$1.23
4	1.07	27	1.26
Mar. 15	1.02	Oct. 27	1.30
20	1.00	Nov. 5	1.35
April 3	.97	15	1.40
Aug. 13	1.07	18	1.50
17	1.17	Dec. 3	1.60
24	1.20	17	1.65
		28	1.75

CORNING, OHIO.

Jan. 1	$0.85	Oct. 7	$1.25
4	.95	27	1.30
Mar. 15	.90	Nov. 5	1.35
20	.85	15	1.40
April 3	.83	18	1.50
Aug. 13	.93	Dec. 3	1.60
17	1.03	17	1.65
24	1.06	30	1.75
Sept. 13	1.12		
27	1.18		

RAGLAND, KY.

Jan. 1	$0.65	Nov. 5	$0.68
4	.70	15	.70
Mar. 15	.65	Dec. 17	.72
April 3	.63	30	.75
Aug. 17	.65		

ILLINOIS.

Jan. 1	$0.89	Oct. 5	$1.17
Feb. 16	.84	23	1.27
Aug. 12	.89	Nov. 15	1.32
20	.94	17	1.37
23	.99	Dec. 3	1.42
Sept. 4	1.04	15	1.47
15	1.09		
27	1.12		

KANSAS AND OKLAHOMA.

Jan. 1	$0.55	Aug. 19	$0.65
Feb. 8	.45	21	.75
15	.40	Sept. 11	.80
Aug. 2	.50	Nov. 13	.90
4	.55	15	1.00
11	.60	Dec. 13	1.10
		14	1.20

INDIANA.

Jan. 1	$0.88	Oct. 23	$0.98
Feb. 16	.83	Nov. 15	1.03
19	.78	17	1.08
Aug. 23	.83	Dec. 3	1.13
Sept. 4	.88	15	1.18
15	.93		

PRINCETON, IND.

Jan. 1	$0.89	Oct. 5	$1.17
Feb. 16	.84	23	1.27
Aug. 12	.89	Nov. 15	1.32
20	.94	17	1.37
23	.99	Dec. 3	1.42
Sept. 4	1.04	15	1.47
15	1.09		
27	1.12		

SOMERSET, KY.

Jan. 1	$0.85	Oct. 7	$1.17
4	.90	27	1.22
Mar. 15	.85	Nov. 5	1.27
20	.83	15	1.32
April 3	.80	18	1.42
Aug. 13	.90	Dec. 3	1.50
17	1.00	13	1.55
24	1.03	30	1.63
Sept. 13	1.08		
27	1.12		

WOOSTER, OHIO.

Jan. 1	$1.15	Sept. 15	$1.25
Feb. 16	1.10	Oct. 23	1.30
Apr. 18	1.05	Nov. 15	1.35
Aug. 20	1.10	17	1.40
23	1.15	Dec. 3	1.45
Sept. 4	1.20	15	1.50

NORTH LIMA, OHIO.

Jan. 1	$0.93	Oct. 23	$1.13
Feb. 16	.88	Nov. 15	1.18
Aug. 20	.93	17	1.23
23	.98	Dec. 3	1.28
Sept. 4	1.03	15	1.33
15	1.08		

SOUTH LIMA, OHIO.

Jan. 1	$0.88	Sept. 22	$1.08
Feb. 16	.83	Oct. 23	1.13
Aug. 20	.88	Nov. 15	1.18
23	.93	17	1.23
Sept. 4	.98	Dec. 3	1.28
15	1.03	15	1.33

HEALDTON, OKLA.

Jan. 1	$0.50	Oct. 25	$0.45
Feb. 2	.30	Nov. 15	.55
Sept. 24	.35	Dec. 14	.60
Oct. 11	.40		

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CORSICANA, LIGHT; ELECTRA AND HENRIETTA, TEX.

Jan. 1	$0.55	Aug. 21	$0.70
Feb. 15	.45	26	.75
Aug. 4	.55	Sept. 15	.80
6	.60	Nov. 15	1.00
13	.65	Dec. 14	1.20

CORSICANA, HEAVY.

Jan. 1	$0.50	Nov. 15	$0.55
Feb. 16	.40	Dec. 14	.60

CADDO, LA., 38 DEGREES AND OVER.

Jan. 1	$0.80	Oct. 6	$0.80
Feb. 18	.70	Nov. 18	.90
Mar. 24	.60	20	1.00
Aug. 27	.65	Dec. 17	1.10
Sept. 15	.70	28	1.20
22	.75		

CADDO, 35 TO 37.9 DEGREES.

Jan. 1	$0.70	Oct. 6	$0.70
Feb. 18	.60	Nov. 18	.80
Mar. 24	.50	20	.90
Aug. 27	.55	Dec. 17	1.00
Sept. 15	.60	28	1.10
22	.65		

CADDO, 32 TO 34.9 DEGREES.

Jan. 1	$0.65	Oct. 6	$0.65
Feb. 18	.55	Nov. 18	.75
Mar. 24	.45	20	.85
Aug. 27	.50	Dec. 17	.95
Sept. 15	.55	28	1.05
22	.60		

CADDO, BELOW 32 DEGREES.

Jan. 1	$0.45	Oct. 6	$0.55
Mar. 26	.35	Nov. 18	.65
Aug. 27	.40	20	.75
Sept. 15	.45	Dec. 17	.80
22	.50		

DE SOTO, LA.

Jan. 1	$0.80	Oct. 00	$0.70
Feb. 18	.70	Nov. 18	.80
Mar. 3	.60	20	.90
24	.50	Dec. 17	1.00
Sept. 15	.55	28	1.10
22	.65		

CRICHTON, LA.

*July 13	$0.45	Oct. 00	$0.60
20	.40	Nov. 18	.70
Sept. 15	.45	20	.80
22	.55	Dec. 17	.85

THRALL AND STRAWN, TEX.

*Aug. 6	$0.55	Sept. 15	$0.75
13	.60	Nov. 15	.95
26	.65	Dec. 14	1.05
Sept. 10	.70		

CANADA OIL SPRINGS.

Jan. 1	$1.33	Sept. 15	$1.53
Feb. 16	1.28	Oct. 23	1.58
Aug. 20	1.38	Nov. 15	1.63
23	1.43	Dec. 8	1.68
Sept. 4	1.48	15	1.73

MORAN, TEX.

*Nov. 15	$0.95	Dec. 14	$1.05

*Date of first listing.

Plymouth, Ill., was first quoted at 43c. July 20; was advanced to 53c., 58c., 63c., 68c., 78c., 83c., 93c., $1.03, $1.13, $1.23 and $1.33 over the balance of 1915, the exact dates of changes not being given.

REFINED PRODUCTS.

Gasoline, Naphtha, Etc.

In the markets for the refined products gasoline developments have been of dominating significance during 1915, and it is largely to this influence that the general industry of the country has undergone an almost complete transformation from the depression which characterized it during the earlier period of the war to a state of prosperity and buoyant prospective. The motor fuel products have replaced the illuminant as the factor of first account in the economic adjustment of the industry. This has been justified principally upon the excess of the country's consumption over production, but this has been supplemented materially during the past year by the exceptional volume of the export trade, as a result of the new opportunities created by the war.

It is difficult to place the country's consumption of gasoline on a reliable basis. The most convincing method of attempting to compute this amount is in the record of motor cars licensed, which follows:—

1915	2,075,570
1914	1,508,304
1913	1,191,864
1912	848,237

The 1915 average annual consumption per car has been placed at 450 gallons, on which basis the total would approximate 934,000,000 gallons, but this is probably too conservative. The requirements other than for automobiles are placed at 500,000,000 gallons, as internal combustion engines are finding a much heavier field for industrial purposes. It is safe, therefore, to reckon the total gasoline consumption of the country at 1,500,000,000 gallons for 1915, or about 30,000,000 barrels. It is predicted that the number of licensed motor cars by another year will be increased by 20 to 25 per cent., which it is not likely to be approximated by any increase in production.

The new methods of distillation, which are subject to considerable variation in the proportionate yields of the lighter distillates, and the wide range in the character of crude oils treated, render it practically out of the question to reach any sound conclusion on the question of the prospective yield of these products. Despite the notable increase in the gasoline output within the last couple of years, as a result of the much more thorough "cracking" processes, it is claimed that consumption, without regard to the exceptional export movement during the war, has gained at an outstripping pace, and the industry is again confronted with the problem of attempting to strike an economic gasoline balance without creating a disturbing effect upon the market for other refined products. The great difficulty lay in caring for the more or less incidental yield of illuminating oil, of which the country's consumption has been on the steady decline during recent years.

A long step toward the more economic regulation of refined production was reached by the installation of a process in some of the larger mid-Western refineries about three years ago, by the operation of which Oklahoma crude oil, the readiest available base, could be broken up to yield at least 40 per cent. of gasoline and subjected to such fine regulation that the proportion could be measured almost to the particular requirements of the market. The use of this process has been restricted by patents, but it has been extended widely through allied concerns in the East and other systems embodying similar principles of distillation have been successfully employed in other sections of the country, all contributing to the cause of gasoline supply on the most practical and distinctive basis.

The development of the Rittman process for distilling gasoline and benzol, toluol and other aromatic hydrocarbons from crude petroleum has been an important accomplishment of the past year. The inventor was a petroleum chemist in the United States Bureau of Mines, and the government officials, convinced of its great commercial importance, have assumed full authority for its practical operation, and it has been announced that the process would be available to all who were willing to abide by the terms of the officials, and that the patent would be taken out for the benefit of the general public. The Aetna Explosives Company was the first to undertake the commercial operation of the Rittman process for the hydrocarbons, so urgently needed in the company's business, but toward the close of the year several of the larger petroleum refining companies entered into agreements for the gasoline production. The merits of the process have been enthusiastically proclaimed after practical demonstrations. We must give a fair share of credit to the production of gasoline from natural gas, generally known as the casing bead method, which has been largely encouraged by the general premium on supplies. This is of a much lighter gravity than the regular product, and requires compounding with heavier bodies before it can be brought within practical service. California has developed its casinghead production on a more commercial scale, the daily output late in the year being given as 38,175 gallons.

The record of changes in the local market for gasoline is indicated as follows, based on prices to garages in steel barrels:—

	Cents per gallon.
January 1	13
January 2	12
July 27	13
August 16	14
August 29	15
September 8	16
October 8	17
November 3	18
November 22	19
December 8	20
December 20	21

The only setback in prices last year was the result of intensified competition on the slackening of the demand under less favorable consuming conditions.

The unusual position of the prevailing market for gasoline is evidenced in the following table of comparisons covering the last five years:—

	High. Cents.	Low. Cents.
1915	21	12
1914	16	13
1913	17	16
1912	16	9
1911	11	9

In November the announcement of Secretary of the Treasury McAdoo's tentative plan for emergency revenue relief to include "an extension of the war tax to gasoline, crude and refined oils, horsepower of automobiles and other internal combustion engines" provoked many expressions of condemnation as another imposition upon the industry and the various consuming interests of the flouted theory that such a scheme would reach a class upon whom the tax was presumed to operate with least burden. A similar method was proposed a year previously by the Senate Finance Committee, fixing a basis of 2c. per gallon on gasoline as a means of raising $20,000,000, but the trade interests waged such a persistent fight against this proposal that its leaders were first driven to a compromise settlement of one cent, and finally put to a decisive rout. Secretary McAdoo's scheme did not, however, reach a status to warrant serious opposition, settling to a position of innocuous neglect.

The course of the local market for other naphtha products during the year is summarized in the following table:—

	Opening. Cents.	Closing. Cents.
Varnish makers' and painters', deod., steel barrels	9	19
wooden barrels	11	22
Machine, 86 degrees, steel barrels	26	34
73@76 degrees, steel barrels	22	29
70@72 degrees, steel barrels	21	27
68@70 degrees, steel barrels	20	26

The changes in the above grades were as follows:—August 16, all up 1 cent but 86 degrees; August 25, v. m. and p. advanced 1 cent; August 29, all up 1 cent but 86 degrees; September 8, all advanced 1c. but 86 degrees; September 13, 86 degrees rose 2 cents and v. m. and p. 1 cent; September 20, v. m. and p. advanced 1 cent; September 30, 86 degrees rose 1 cent, and October 25, 3 cents; November 3, all advanced 1 cent but 86 degrees; November 22 and December 20, all rose 1 cent.

The export market for gasoline and the naphthas was subjected to no price change until August 26, when a general advance of one cent became effective. Similar advances were made on September 4, November and December 4 and 18; benzine prices alone were raised 1½ cents November 30. The upward movement was fully justified on the exceptional outlet for war consumption, especially of the lower gravity products. The export trade is treated by statistical records in a following column.

Opening Quotations.

GASOLINE, NAPHTHAS, ETC.

	10-gal. drums: Under 100 cases.	10-gal. drums: 100 cases and over.	100-gal. drums.*
Benzine, 59@62 deg.	23¾	23¼	14¼
Gasoline, stove	26½	26	17
Naphthas—			
Auto, 68@72 deg.	29	28½	19¼
73@76 deg.	33	32½	23½

	In cans and cases: Under 100.	100-199.	200-299.
Benzine, 59@62 deg.	18¾	18½	18¼
Gasoline, stove	21½	21¼	21
Naphthas—			
Auto, 68@72 deg.	24	23¾	23½
73@76 deg.	28	27¾	27½

*This style of container has been withdrawn from the export trade.

Closing Quotations.

GASOLINE, NAPHTHAS, ETC.

	10-gallon drums: Under 100 cases.	10-gallon drums: 100 cases and over.
Benzine, 59@62 deg.	30¼	29¾
Gasoline, stove	31½	31
Naphthas—		
Auto, 68@72 deg.	34	33½
73@76 deg.	38	37½

	In cans and cases: Under 100.	100-199.	200-299.
Benzine, 59@62 deg.	25¼	25	24¾
Gasoline, stove	26½	26¼	26
Naphthas—			
Auto, 68@72 deg.	29	28¾	28½
73@76 deg.	33	32¾	32½

Illuminating Oil.

The export market has contributed the only interesting developments during the year. Under normal conditions the foreign markets are relied upon to absorb about 50 per cent. of the country's production, but the war has operated to a curtailment of about 10 per cent., due to the blockade of Germany, our principal outlet, and the inability of other European markets to maintain their usual trade relations. The limitation upon shipping facilities was a serious handicap to the movement of illuminating oil. The practice of converting the German oil tankers into American registry was expedited to all possible extent during the year and afforded a measure of relief to the scarcity of tonnage. Charter accommodations were called into all possible service. Freight rates reached levels that under normal conditions would have been regarded as prohibitive, $1.50 for Australia and $1.25 for the Far East prevailing late in the year for cases of ten gallons each. There were various complications in the shipping situation, cargoes being detained by the British authorities on suspicion of consignment for ultimate consumption by the enemy, but the most critical development was the sinking of the American oil tanker Gulflight by a German submarine last May. The status of the tankers converted from German to American registry after the beginning of hostilities, which was a threatening complication in the latter part of 1914, was not called into new issue last year.

The impairment of the foreign trade and weakening course of high grade crude values were the means of a steady depreciation in illuminating oil over the first five months of the year. Quotations were reduced twenty-five points for fifteen points March 31 and ten points bulk, barrels and cases January 27, crude values by August and the introduction of twenty-five points May 24. With the substantial enhancement in creasing volume of export business, the April 1, cases sustained a special remarket developed a firmer tone, but there was no reflection upon actual values until October 27, when a general advance of twenty-five points became effective, the first upward move the market had experienced since October 23, 1913. Bulk and cases were marked up twenty-five points and barrels forty points on November 23, and all description were increased twenty-five points December 7 and 14.

The first available foreign statistics for 1915 show imports of illuminating oil into the United Kingdom from this country of 124,987,973, of a total of 141,424,353 gallons, as against 116,595,460, of a total of 146,601,230 gallons for 1914.

The record of export quotations for illuminating oil in 1915 follows:—

STANDARD WHITE, 110 TEST.

1915.	Cents per gallon: Bulk.	Barrels.	Cases.
January 1	4.50	8.00	10.50
January 27	4.25	7.75	10.25
March 31	4.10	7.60	10.10
April 1	4.00	7.50	10.00
May 24	...	...	9.75
October 27	4.25	7.75	10.00
November 23	4.50	8.15	10.25
December 7	4.75	8.40	10.50
December 14	5.00	8.65	10.75
1914, high	5.25	8.75	11.25
1914, low	4.75	8.25	10.75

The local jobbing market was without notable interest during the year and business was of a wholly routine character. A decline of one cent in 150 test oil in tank wagon to 9c. was effective February 5, barrels being maintained at 12c., under the influence of the crude market. The same factor occasioned the only other change of the year, an advance of one cent November 8, restoring the market to its former basis.

Lubricating Oils.

The course of the market for lubricating oils during the year has not involved the same interesting developments as those which have characterized the other refined products. The lubricants, as a rule, are less susceptible to price fluctuations, the general tendency of refiners being to keep the market on as even a basis as possible. It is said that changes involve more trouble among the distributing trades in the lubricants than the other products. The ruling factor to warrant changes is the high grade crude market. During the early months of the year the weakening course of crude values, combined with continued depression in general industrial activities, reflected a bearish sentiment, and while no departures from the open schedules were announced, the figures were concededly nominal and concessions were believed to be the rule where important engagements were at stake. With the turn in the crude market late in August the lubricants developed a firmer tone, improvement in the export trade being a contributing factor. An advance of 1 cent became effective on September 17, covering neutral, paraffine and spindle oils, as being more susceptible to the force of the basic materials. The same influences reflected a further advance of 1½ cents applying to the same grades on November 20, remaining in effect over the balance of the year.

Domestic trading was appreciably stimulated at the prospective and actual enhancement of values, and the general expansion of industrial activities late in the year imparted increasing confidence in the market. The demand for export has played an important part in the more creditable developments during the last few months of the year. At times the foreign requirements placed somewhat of a restriction upon the stocks available for home consumption. Greater opportunities for our lubricants have been created by the war, and the latest details of distribution of exports by countries show heavy gains for account of the United Kingdom, France and the unspecified other European countries, offsetting the restriction upon shipments to Germany and Belgium. The record of imports of lubricating oils into the United Kingdom for 1915, with comparisons for 1914, follows:—

	1915. Gallons.	1914. Gallons.
Total imports	69,574,170	68,862,130
From United States	67,537,870	54,846,900

Total exports of lubricating oils from this country for the last four years are given in the general export table in a following column.

The year's changes in the lubricating oils are noted in the following comparison of opening and closing quotations:—

	Cents per pound: Opening.	Closing.
Neutral, West Virginia, 29 gravity	22	24½
filtered lemon	33	35½
gravity	17	19½
white, 33@34 gravity	26	28½
32@34 gravity, bloomless	17	19½
31 gravity, wool grade	15	17½
Paraffine, high viscosity	22	24½
903@907 specific gravity	15	15½
906 specific gravity	14	16½
885 specific gravity	12	12½
875 specific gravity	10	11½
865 specific gravity	11	13⅛
red paraffine	12	13
Spindle, No. 200	17	19½
No. 100	16	18½
No. 110	15	18
No. 80	14	16

EXPORTS.

The general petroleum export situation during 1915 has reflected a much more favorable aspect, and many of the complications and harassing conditions of the former year have been remedied or shorn of their more formidable significance. While practically all of the products have been in a quasi contraband class, no serious handicap to shipments has been experienced. There have been occasional detentions of outward bound vessels bearing refined oil on suspicion that while the clearance papers indicated neutral destinations, the cargoes were ultimately designed for trans-shipment for the enemy's consumption. In practically all cases, however, the vessels have been permitted to proceed. The sinking of the Gulflight by a German submarine while carrying a cargo of refined oil to Europe stands as the only critical experience of the year; settlement of this case is still in issue between the two governments. Rumors of the destruction of other tank vessels have been current, but they have proved without justification.

The question of adequate freight facilities for the movement of petroleum products has been a factor of grave import during the year. Partial relief has been afforded by the more general transfer of tank vessels from German to American registry, and this practice, which gave occasion for concern during the latter part of 1914 as making them liable to seizure and condem-

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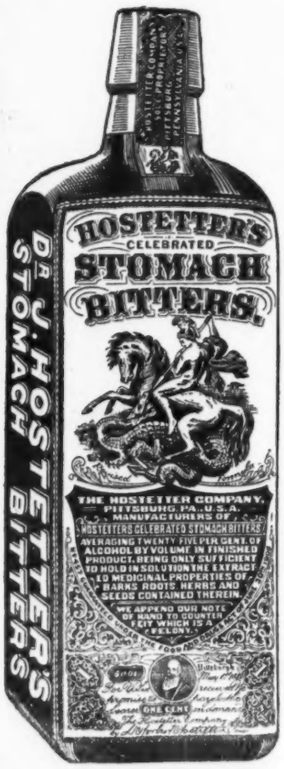

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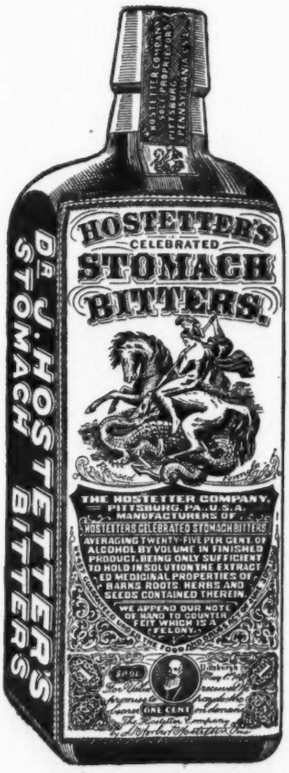

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nation as a violation of the British treaty, has undergone no determining test during the past year, and a fair degree of assurance in the recognition of this right by the allied powers has now been established. It is reasonable to assume that these powers have not found it expedient to press this issue, since they have been able to turn the availability of the converted registry vessels to such beneficial account. General cargo boats have been in unprecedented demand to move the oil supplies so eagerly sought, and every craft that could be made suitable for the service has been availed of. Charter rates touched levels that would seem to be beyond all practicable consideration, but the extreme limits were apparently not a retarding factor upon engagements. Later in the year fixtures were placed for case oil for Australia at $1.50 per case of ten gallons and at $1.25 for the Far East, well in excess of the original value of the product. The movement of various products for foreign consumption would undoubtedly have reached materially heavier proportions with readier freight accommodations, and the significance of this has made a deep impression upon the leading refining companies of the country, with the result of a heavy prospective increase in the number of tank vessels.

Petroleum export records for 1915 give the following general totals, with comparisons for the two former years:—

	Gallons.	Values.
1915	273,806,978	$33,081,274
1914	199,754,004	24,437,062
1913	178,971,302	26,927,474

The gain last year over 1914 amounted to 3.84 per cent. in volume and 2 per cent. in value, comparing with a volume gain of 5.40 per cent. in volume, but a value decline of 5.90 per cent. on the comparison between 1914 and 1913.

Gasoline and the other naphtha products have been the dominating feature of last year's export trade, surpassing all former records. The war has been the means of the exceptional growth of foreign consumption, owing to the importance of these products for motor fuel. There has been almost no limit to the quantities sought here by the European governments, but it has been impossible to begin to meet the requirements not only by reason of the limitation upon tonnage, but as a result of the insufficiency of supplies available for export. While the record of shipments for 1915 show a heavy loss in gasoline on the comparison of 1914 returns, the other naphtha distillates register a gain of far more than compensating effect, as noted in the following comparisons covering all the naphthas:—

	Gallons.	Values.
1915	2,309,760,792	$141,004,663
1914	2,224,250,324	138,381,994
1913	2,108,365,444	147,174,164

The 1915 record marks a gain of 37.37 per cent. in volume and of 35.37 per cent. in value over the 1914 returns.

The naphtha exports in 1915 comprised 12.90 per cent. of the general volume and 22.70 per cent. of the value, as against 8.58 and 18.73 per cent., respectively, in 1914 and 9.77 and 19.98 per cent. in 1913.

Monthly exports of gasoline and the other naphthas for 1915 follow:—

Gasoline.

	1915. Gallons.
January	7,957,995
February	17,292,897
March	16,435,783
April	10,071,792
May	9,022,425
June	10,770,406
July	7,235,859
August	8,279,278
September	4,612,832
October	6,640,659
November	10,009,254
December	4,019,755
Total	122,408,930

Other Naphtha Products.

	1915. Gallons.
January	5,666,706
February	6,053,804
March	5,599,158
April	14,187,422
May	16,094,600
June	17,602,424
July	17,712,125
August	24,788,154
September	16,422,328
October	11,903,095
November	17,355,256
December	18,875,815
Total	166,600,890

Imports of benzine covering practically all the motor fuel oils into the United Kingdom last year, with comparisons for 1914 from the principal sources follow:—

	1915. Gallons.	1914. Gallons.
Total	146,334,702	120,460,150
From United States	60,888,662	40,766,150
From Dutch Indies	60,450,730	52,125,000

A comparison of exports of gasoline and other naphthas for the first year of the war ending last July and the former twelve months, follows:—

	August, 1914-July, 1915— Gallons.	Values.
Gasoline	145,214,658	$16,212,026
Other naphthas	103,452,991	11,301,654
Totals	248,667,649	$27,513,680
	August, 1913-July, 1914— Gallons.	Values.
Gasoline	162,438,602	$22,594,594
Other naphthas	41,638,053	5,369,991
Totals	204,076,655	$27,964,585

Our foreign trade in illuminating oil, which has been the mainstay of the petroleum industry since its origin, retained its lead in 1915, although its prestige was impaired as a result of the loss of some of the most important European markets, Germany and Belgium having been entirely cut off. Totals for the last three years follow:—

	Gallons.	Values.
1915	835,246,438	$49,787,246
1914	1,008,405,576	63,942,789
1913	1,118,096,475	71,935,201

On the comparisons of the last two years there was a loss of 17.17 per cent. in volume and of 22.14 per cent. in value. The proportion of illuminating oil exports to the general total of petroleum products last year was 36.16 per cent. in volume and 35.31 per cent. in value, as compared with 45.34 and 46.21 per cent., respectively, in 1914 and 53.08 and 49.12 per cent. in 1913.

Monthly shipments of illuminating oil last year follow:—

Illuminating Oil.

	1915. Gallons.
January	58,305,598
February	54,063,983
March	71,875,525
April	59,832,778
May	93,622,467
June	81,778,653
July	79,225,876
August	77,844,829
September	68,425,038
October	70,677,380
November	55,552,005
December	65,266,026
Totals	835,246,438
Value	$49,787,246

Shipments for the twelve months ending last July covering the first year of the war, with comparisons for the former period, follow:—

	Gallons.	Values.
Aug., 1914-July, 1915	854,766,354	$54,462,745
Aug., 1913-July, 1914	1,177,336,108	75,231,109

Imports of illuminating oil into the United Kingdom last year, with comparisons for 1914, follow:—

	1915. Gallons.	1914. Gallons.
Total	141,424,353	146,601,230
From United States	124,987,973	116,595,460

Next to naphthas, lubricating oils stand to advantage in last year's foreign trade, the total being 237,660,120 gallons ($32,004,289), comparing with 190,888,017 gallons ($25,916,336) in 1914 and 205,825,151 gallons ($29,289,805) in 1913. Percentage gains in 1915 were 24.50 in volume and 23.50 in value over 1914 and 15.47 in volume and 9.27 in value for 1913. It is reasonable to attribute the lion's share of the 1915 increase to the new opportunities created by the war, as our trade with the principal Continental markets, comprising a good share of normal consumption, has been seriously curtailed during the past year. The proportion of lubricating oil exports to the general totals were:—12.90 per cent. in volume and 22.70 per cent. in value for 1915, as compared with 8.58 per cent. in volume and 18.73 per cent. in value, respectively, in 1914.

Details of monthly shipments of lubricating oils for the last year follow:—

Lubricating Oil.

	1915. Gallons.
January	17,416,997
February	11,830,237
March	17,398,505
April	25,900,105
May	22,616,397
June	27,261,204
July	24,980,304
August	22,715,614
September	18,492,949
October	18,278,962
November	18,744,561
December	18,046,852
Total	237,660,120
Value	$32,004,289

A fair measure of the gain in exports of gas oil, fuel oil and other residuum products during 1915 may be attributed to the influence of the war, although the increase was far below that of 1914 over 1913. The figures follow:—

	Gallons.	Values.
1915	808,343,638	$21,956,843
1914	701,612,276	19,158,282
1913	420,480 849	10,846,917

While last year surpassed the former by 15.21 per cent. in volume and 14.61 per cent. in value, 1914 was credited with 66.90 per cent. in volume and 76.62 per cent. in value over 1913. The proportion of exports of residuum products to the total for 1915 was 35 per cent. in volume and 15.57 per cent. in value.

Monthly shipments of residuum are shown in the following table:—

Residuum Products.

	1915. Gallons.
January	45,995,441
February	54,618,537
March	42,937,012
April	53,314,720
May	66,043,465
June	56,705,066
July	77,183,450
August	84,921,710
September	92,238,657
October	84,921,710
November	72,528,938
December	68,897,168
Total	808,343,638
Value	$21,956,843

The sharp volume gain in crude oil shipments in 1915, 25.20 per cent., is discredited by the loss in value, 15.27 per cent. Comparisons are given as follows:—

	Gallons.	Values.
1915	154,703,618	$4,175,011
1914	123,590,451	4,927,525
1913	184,991,667	8,174,767

Crude oil represents a comparatively small proportion of the total shipments, 6.70 per cent. in volume and 3 per cent. in value for 1915.

Monthly exports of crude oil last year follow:—

Details of monthly shipments of crude follow:—

Crude Oil.

	1915. Gallons.
January	13,329,892
February	9,138,139
March	14,140,838
April	8,863,482
May	11,821,211
June	21,361,680
July	11,755,109
August	15,630,236
September	14,997,987
October	12,518,427
November	13,594,958
December	10,704,724
Total	154,703,618
Value	$4,175,011

Total exports of crude and refined oils by months last year were:—

Total Petroleum Exports.

	Gallons. 1915.
January	148,872,606
February	152,997,597
March	168,586,821
April	172,170,299
May	219,220,565
June	211,479,373
July	218,090,714
August	232,224,014
September	214,745,377
October	265,462,089
November	186,817,899
December	184,712,183
Total	2,309,769,792
Value	$141,004,663

EASTERN PETROLEUM REVIEW.

The Pennsylvania fields show somewhat of a feature during the year by the development work early in the year in the Evans City pool, in Butler county, where some very creditable wells were finished, but it was in September that the real field was opened by the National Oil and Gas Company, when they drilled in the Robinson tract well in the Dorseyville field in Allegheny county that showed a production of close to 900 barrels, and was followed by other wells of note in the field. This little strip of territory has been or was condemned years ago when many wells were drilled all around it, and the fact that it had not been touched by the drill brought about the initial test work there with the best results of the year in the Keystone State. The pool has now been almost defined and covers but a small area of the richest of rich territory, and there are numerous good-looking locations to drill on the inside.

The wells drilled in the Pennsylvania-Southern New York fields during 1916 were by months as follows:—

Month.	Comp.	Prod.	Gas.	Dry.
January	104	208	11	18
February	103	215	18	17
March	114	245	5	14
April	134	270	13	16
May	152	320	24	26
June	137	969	15	23
July	172	1,527	23	29
August	189	1,651	25	33
September	170	830	22	34
October	226	900	20	24
November	226	1,445	23	28
December	170	568	21	15
Totals	1,897	9,148	220	277
For 1914	2,861	6,616	297	345
Difference	964	2,532	77	68

The above wells for the year were distributed by each month in each field as follows:—

CLARION-VENANGO FIELDS.

Month.	Comp.	Prod.	Gas.	Dry.
January	32	27	5	2
February	33	50	4	3
March	41	48	2	4
April	37	50	4	5
May	44	43	8	7
June	40	43	4	6
July	51	48	5	11
August	53	48	8	6
September	54	51	6	8
October	72	78	3	6
November	74	85	8	6
December	59	64	13	1
Totals	590	634	70	64
For 1914	941	1,271	69	68
Difference	351	637	1	4

SOUTHWEST PENNSYLVANIA.

Month.	Comp.	Prod.	Gas.	Dry.
January	39	102	5	11
February	28	58	8	9
March	25	72	1	5
April	19	59	1	8
May	38	56	7	12
June	20	70	3	4
July	27	38	8	7
August	29	40	10	7
September	35	503	5	15
October	41	501	12	10
November	36	1,078	7	9
December	23	292	6	6
Totals	360	2,869	77	103
For 1914	623	2,042	120	127
Difference	263	827	43	24

BRADFORD FIELD.

Month.	Comp.	Prod.	Gas.	Dry.
January	17	49	1	1
February	19	42	2	1
March	22	62	1	..
April	36	93	5	..
May	32	22	4	..
June	19	60	..	1
July	21	90	4	1
August	26	45	3	6
September	35	123	3	..
October	40	119	2	..
November	49	147	2	..
December	32	100	..	..
Totals	348	952	27	11
For 1914	534	1,576	48	28
Difference	186	624	21	17

BUTLER-ARMSTRONG FIELD.

Month.	Comp.	Prod.	Gas.	Dry.
January	11	19	..	4
February	11	51	1	5
March	16	42	1	3
April	21	46	2	2
May	20	171	3	6
June	22	760	1	9
July	46	1,253	..	10
August	60	1,478	..	13
September	27	116	..	11
October	36	148	3	7
November	34	70	4	4
December	19	55	1	4
Totals	323	4,218	16	83
For 1914	276	659	19	79
Difference	47	3,559	3	4

MIDDLE FIELD.

Month.	Comp.	Prod.	Gas.	Dry.
January	1	5	..	..
February	4	8	..	..
March	9	20	..	..
April	15	17	..	1
May	8	18	1	1
June	23	23	1	3
July	15	88	2	..
August	16	34	2	1
September	13	30	2	..
October	26	33	..	1
November	23	42	1	5
December	25	35	..	2
Totals	178	358	9	14
For 1914	220	622	6	16
Difference	42	269	3	2

ALLEGHENY FIELD.

Month.	Comp.	Prod.	Gas.	Dry.
January	4	6	..	..
February	8	6	3	..
March	1	1	..	..
April	6	5	1	..
May	10	11	1	..
June	13	13	6	..
July	12	10	4	..
August	5	6	2	..
September	6	7	2	..
October	11	21	..	..
November	10	14	1	1
December	12	22	1	1
Totals	98	122	21	2
For 1914	267	446	35	17
Difference	169	324	14	15

The above tables show that the Butler-Armstrong field was the only one of the Pennsylvania fields to show an increase in finished wells during 1915. This county also showed a remarkable increase in production, due to the good wells found in the Evans City field. The Southwest Pennsylvania field also showed an increase in production, but a heavy falling off in finished wells. The new production is credited to the good wells found in the Dorseyville field.

A few wells in the gusher class from 100 barrels up were drilled in the Pennsylvania regions during the year, but they were confined alone to two counties, Butler and Allegheny, and were by months as follows in each county:—

BUTLER COUNTY.

May.

McClay, Martin & Co., 200 barrels.

June.

Plaisted, Henite & Co., 250 barrels; Kelley, Gore & Ryan, 200 barrels, and Ryan & Morris, 300 barrels.

July.

McSweeney, Anderson & Co., 150 barrels; Schmidt, Sauer & Co., 250 barrels, and the South Penn. Oil Company, 600 and 350 barrels.

August.

J. D. Fowler & Co., 350, 350 and 250 barrels; Root, Hupp & Duff, 250, 100 and 150 barrels; Clay Brothers & Co., 100 barrels; Schmidt Oil Company, 100 barrels; Morris & Griswell, 100 barrels, and Plaisted, Markley & Co., 100 barrels.

ALLEGHENY COUNTY.

September.

American Natural Gas Company, 500 barrels; National Oil and Gas Company, 900 barrels, and Alex. Walley, 750 barrels.

October.

National Oil and Gas Company, 1,050 barrels.

November.

American Natural Gas Company, 750 barrels; National Oil and Gas Company, 150 barrels; Rushville Drilling Company, 100 barrels, and Alex. Walley, 800 barrels.

WEST VIRGINIA.

The West Virginia fields were not as active during 1915 as were the case in former years, due to the low price of oil at the wells in the earlier part of the year. During the slump in prices most of the oil men shut down drilling operations and most of the work accomplished was by the large gas concerns that were compelled to drill to secure a supply for the many lines supplying the product for heat and light over several states. At the close of the year the Cabin Creek district in Kanawha county is still the best looking proposition in the Little Mountain State, but this good looking oil territory is controlled almost exclusively by the Columbus Producing Company, which is the only company that has been able to find profitable wells.

There remains a lot of undrilled territory in most of the counties producing oil. Wetzel, Tyler, Kanawha, Doddridge, Monongalia, Mannington, Lewis, Ritchie, Wirt, Wood, Harrison, Calhoun, Cabell, Roane and other counties that are numbered among the best in the State, will be pretty well punctured with holes during the new year, as the price of oil now warrants extensive drilling of promising territory. Along the Kentucky-West Virginia line more test work will be done than ever before, as it is in that direction that an extension must be looked for, if any is found.

During 1915 only 1,253 wells were finished in the West Virginia producing fields, of which 280 were gas wells and 246 dry holes, leaving 727 oil-producing wells with a daily production of 13,633 barrels, or an average close to 19 barrels to the well. These wells were drilled by months as follows:—

Month.	Comp.	Prod.	Gas.	Dry.
January	103	1,640	22	27
February	101	821	20	24
March	110	1,995	20	27
April	98	1,112	24	18
May	114	1,177	22	16
June	60	753	17	22
July	110	1,276	30	20
August	100	961	17	18
September	100	1,089	17	17
October	111	679	27	21
November	128	1,360	30	24
December	118	770	34	12
Total	1,253	13,633	280	246
For 1914	1,759	25,229	305	339
Difference	506	11,596	85	93

The more important wells or those that produced from 100 barrels or better for the year, were distributed by months and counties as follows:—

KANAWHA COUNTY.

January.

Ohio Fuel Oil Company, 350, 200, 600 and 400 barrels, and the South Penn Oil Company, 150 barrels.

February.

Ohio Fuel Oil Company, 150 and 100 barrels.

March.

South Penn Oil Company, 400 and 250 barrels, and the Ohio Fuel Oil Company, 150, 600 and 300 barrels.

April.

Ohio Fuel Oil Company, 200 and 150 barrels.

May.

Columbus Producing Company, 200 barrels.

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JOHN C. WIARDA & CO.

259-273 Green Street, Brooklyn, N.Y.

ESTABLISHED 1871

Manufacturers, Importers and Exporters of

INDUSTRIAL CHEMICALS

June.
Ohio Fuel Oil Company, 100 and 125 barrels.
July.
South Penn Oil Company, 200 barrels.
September.
South Penn Oil Company, 125 barrels, and the Ohio Fuel Oil Company, 100 barrels.
October.
Ohio Fuel Oil Company, 100 barrels, and Columbus Producing Company, 200 barrels.
November.
South Penn Oil Company, 600 barrels, and Columbus Producing Company, 100 barrels.
December.
Columbus Producing Company, 150 barrels.

WIRT COUNTY.

January.
Walnut Creek Oil Company, 100 barrels.
February.
Walnut Creek Oil Company, 100 barrels.

ROANE COUNTY.

January.
G. L. Cabot, 100 barrels.
February.
South Penn Oil Company, 100 barrels.

MANNINGTON DISTRICT.

March.
J. T. Miller & Co., 250 barrels, and Hope Natural Gas Company, 100 barrels.
May.
South Penn Oil Company, 600 barrels.
September.
Hope Natural Gas Company, 250 barrels, and South Penn Oil Company, 300 barrels.
November.
Hope Natural Gas Company, 100 barrels.

WETZEL COUNTY.

April.
Hope Natural Gas Company, 250 barrels.
July.
I. C. Kingsley & Co., 450 barrels, and the Pittsburgh and West Virginia Gas Company, 150 barrels.
November.
Wildwood Oil Company, 100 and 100 barrels.

CLAY COUNTY.

November.
Chalmers Oil and Gas Company, 200 barrels.

HARRISON COUNTY.

December.
Reserve Gas Company, 100 barrels.

SOUTHEASTERN OHIO.

The Southeastern Ohio fields made about as poor a showing as did any of the high grade fields during 1915, as there were but 948 wells finished in the shallow and deep sand sections, of which 51 were gas wells and 282 dry holes, leaving 615 oil wells with a production of 7,231 barrels, or an average per well per day of about 11⅔ barrels.

The best results of the year were obtained from the deep Clinton sand fields of the field, as the more shallow sands show nothing but very light pumpers. The slump in development work in the field started about September, 1914, and did not revive much until in October, 1915, when the prices of oil commenced to go upward, and since then there has been a little active work done. With a low price for oil, the trade would hardly think of doing much test work in the deep sands, as the wells cost around $6,000 apiece to drill and a dry hole or very small well represents a heavy loss. With present prices some of the territory that has been cast aside will be looked over and further tested, especially that in the upper counties of Muskingum, Coshocton, Wayne, Licking and Fairfield, as well as Perry county, the home of Corning oil. The best producing territory in sight at the close of the year is some held by the Preston Oil Company near Union Furnace, in Hocking county, and known as the Starr district, being centralized in a township by that name. Here this company has been drilling in some most remarkable wells and still has an abundance of territory that looks good for many gushers.

The wells for the year were finished by months as follows:—

Month.	Comp.	Prod.	Gas.	Dry.
January	84	618	4	27
February	57	438	3	18
March	75	478	4	24
April	82	509	4	22
May	72	614	4	23
June	43	617	3	17
July	74	490	6	24
August	87	315	6	32
September	66	634	2	15
October	84	530	5	21
November	112	796	5	32
December	112	1,252	5	27
Total	948	7,231	51	282
For 1914	1,278	10,165	69	374
Difference	330	2,934	18	92

There were thirty gushers drilled in the Southeastern Ohio field during 1915, compared with forty-two for 1914 and fifty-nine for 1913. These gushers were by counties and months as follows:—

PERRY COUNTY.

January.
Lupher Oil Company, 125 barrels.
February.
Carter Oil Company, 100 barrels.
March.
Price Farm Oil Company, 100 barrels.
July.
Carter Oil Company, 150 barrels.

HOCKING COUNTY.

January.
Cowell, Cochran & Co., 100 barrels, and Chartiers Oil Company, 100 barrels.
February.
Union Furnace Oil Company, 150 barrels.
April.
Preston Oil Company, 200 barrels.
May.
Chartiers Oil Company, 150 barrels; Plymouth Oil and Gas Company, 150 barrels, and Cowell, Cochran & Co., 100 barrels.
June.
Plymouth Oil and Gas Company, 150 barrels.
September.
Preston Oil Company, 100, 150 and 350 barrels.
November.
Preston Oil Company, 200 barrels, and Union Furnace Oil Company, 350 barrels.
December.
Preston Oil Company, 200, 260, 230 and 200 barrels.
October.
Preston Oil Company, 150 barrels.

WASHINGTON COUNTY.

January.
Walter Brown heirs, 100 barrels.
April.
Farmers' and Producers' Bank Company, 100 barrels.
December.
William Reader, 200 barrels.

MUSKINGUM COUNTY.

February.
Columbus Oil and Fuel Company, 125 and 100 barrels.

BELMONT COUNTY.

February.
Natural Gas Company of West Virginia, 150 barrels.

MONROE COUNTY.

March.
George Vandegrift & Co., 150 barrels.

LICKING COUNTY.

June.
Farbing Drilling Company, 100 barrels.

CENTRAL OHIO GAS FIELD.

The Central Ohio gas field has grown into prominence more during the year 1915 than for any previous year since the first gas wells were drilled in the Sugar Creek field, in Fairfield county, which was about twenty or more years ago. The field now covers a vast area of territory extending from the southern portion of Vinton county in the south central part of the State to the shores of Lake Erie, a distance of some two hundred miles. An immense amount of gas was developed during the year as well as oil. The leading gas counties are:—Cuyahoga, Licking, Fairfield, Knox, Ashland, Hocking, Perry, Medina, Lorain, Wayne, Richland, Vinton, Holmes and Meigs. Oil was found during the year in Knox, Ashland, Hocking, Medina, Vinton and Cuyahoga counties, but not in large quantities outside of Hocking county.

During the year 952 wells were finished in the counties mentioned and 49 were oil wells, 189 were dry holes and 714 were gas wells. The Cleveland field as usual took the lead, but now that the town lot development is about done with the field will not make such a big showing as during the past two seasons. Work is gradually working out of the city on acreage property and this will be drilled with more care than was the town lot drilling. Monster gas wells were found in the Cleveland field, but the fact that the wells were drilled so close together that their production went off at a rapid rate and many wells have been given up as worthless after producing for but a few months. This is always the result when town lot developments are started, even in the oil end as well as in the gas, but more so in the gas part, as the volume and pressure declines so rapidly that the wells are of short life. A record of each month's work in the field during 1915 is as follows:—

Month.	Comp.	Oil wells.	Oil prod.	Gas.	Dry.
January	114	2	40	97	15
February	101	3	90	86	12
March	91	2	15	72	17
April	70	3	65	50	17
May	51	5	108	33	13
June	73	7	160	52	14
July	45	3	35	30	12
August	74	2	30	51	21
September	73	5	143	56	12
October	75	2	150	59	14
November	106	5	105	80	21
December	79	10	745	48	21
Totals	952	49	1,686	714	189
1914	768	46	1,745	590	132

The gas wells finished monthly, with the volume of the wells when first drilled in, are as follows:—

Month.	Gas wells.	Gas production.
January	97	210,446,000
February	86	216,631,819
March	72	158,681,870
April	50	106,377,320
May	33	89,286,000
June	52	133,581,217
July	30	71,649,984
August	51	143,128,742
September	56	133,497,884
October	59	154,510,344
November	80	133,005,161
December	48	94,276,369
Totals	714	1,645,066,710
For 1914	590	1,092,435,288
Difference	124	552,631,422

The wells for 1915 were distributed by counties as follows:—

LICKING COUNTY.

Month.	Comp.	Gas.	Dry.
January	4	4	1
February	1	1	..
May	3	1	2
June	3	3	..
July	3	3	..
August	5	4	1
September	5	5	..
October	5	5	..
November	16	14	2
December	2	2	..
Totals	48	42	6

CUYAHOGA COUNTY.

Month.	Comp.	Oil wells.	Oil prod.	Gas.	Dry.
January	94	1	25	83	10
February	80	1	25	71	8
March	71	2	15	57	12
April	51	1	10	39	13
May	29	1	50	24	4
June	23	..	..	22	1
July	18	1	6	13	4
August	29	1	5	24	4
September	22	..	..	21	1
October	19	..	..	18	1
November	38	2	15	31	5
December	39	3	65	30	36
Totals	513	13	215	433	69
For 1914	384	7	78	342	35
Difference	131	6	137	91	34

WAYNE COUNTY.

Month.	Comp.	Gas.	Dry.
January	8	8	..
February	13	11	2
March	12	9	3
April	8	5	3
May	7	6	1
June	11	7	4
July	8	5	3
August	10	5	5
September	13	11	2
October	15	12	3

November	12	9	3
December	9	7	2
Totals	126	95	31
For 1914	61	37	15
Difference	55	58	16

In 1914 there were nine oil wells with a production of 330 barrels finished in Wayne county, but no oil wells during 1915.

ASHLAND COUNTY.

Month.	Comp.	Oil wells.	Oil prod.	Gas.	Dry.
January	3	..	..	2	1
February	..	..	..	..	..
March	5	..	..	4	1
April	2	..	..	1	1
May	4	..	..	..	4
June	12	..	..	10	2
July	6	..	..	4	2
August	11	..	..	7	4
September	13	..	..	9	4
October	9	..	..	8	1
November	15	1	5	10	4
December	8	..	..	5	3
Totals	88	1	5	60	27
For 1914	88	2	50	71	15
Difference	..	1	45	11	12

HOCKING COUNTY.

Month.	Comp.	Oil wells.	Oil prod.	Gas.	Dry.
January	1	1	15	..	..
February	3	2	65	1	1
April	4	2	55	2	..
May	4	3	50	..	1
June	2	1	20	1	..
July	2	1	25	1	..
August	5	1	25	2	2
September	5	4	140	1	..
October	5	2	150	3	..
November	4	1	60	1	2
December	8	6	630	1	1
Totals	43	24	1,235	13	6
For 1914	74	25	1,237	28	21

VINTON COUNTY.

Month.	Comp.	Oil wells.	Oil prod.	Gas.	Dry.
March	3	..	..	2	1
April	1	..	..	1	..
May	1	1	8	..	..
June	6	1	5	3	2
July	1	1	5	..	..
August	3	..	..	3	..
September	5	1	3	3	1
October	8	..	..	3	5
November	5	1	25	4	..
December	8	1	50	2	5
Totals	41	6	96	21	14
For 1914	6	..	..	4	2
Difference	35	6	96	17	12

RICHLAND COUNTY.

Month.	Comp.	Gas	Dry.
January	2	..	2
February	3	2	1
March	..	..	..
April	1	1	..
May	1	1	..
June	4	4	..
July	3	3	..
August	4	2	2
September	3	2	1
October	7	5	2
November	4	2	2
Totals	32	22	10
For 1914	33	17	16
Difference	1	5	6

MEDINA COUNTY.

Month.	Comp.	Oil wells.	Oil prod.	Gas.	Dry.
January	1	..	..	..	1
February	1	..	..	..	1
May	1	..	..	..	1
June	7	4	35	1	2
July	2	..	..	..	3
August	2	..	..	2	..
September	3	..	..	3	..
October	3	..	..	2	1
November	7	..	..	5	2
Totals	28	4	35	13	11
For 1914	29	..	..	22	7
Difference	1	4	35	9	4

KNOX COUNTY.

Month.	Comp.	Oil wells.	Oil prod.	Gas.	Dry.
April	1	..	..	1	..
June	4	1	100	1	2
August	2	..	..	2	..
September	2	..	..	1	1
November	2	..	..	2	..
December	2	..	..	..	2
Totals	13	1	100	7	5
For 1914	1	..	..	..	1
Difference	12	1	100	7	4

FAIRFIELD COUNTY.

Month.	Comp.	Gas.	Dry.
June	1	..	1
August	2	..	2
October	2	2	..
November	1	1	..
December	1	1	..
Totals	7	4	3
For 1914	8	6	2
Difference	1	2	1

LORAIN COUNTY.

Month.	Comp.	Gas.	Dry.
May	1	1	..
July	1	1	..
August	1	..	1
September	1	..	1
December	1	..	1
Totals	5	2	3
For 1914	4	1	3
Difference	1	1	..

HOLMES COUNTY.

Month.	Comp.	Gas.	Dry.
September	1	..	1
October	1	..	1
November	1	..	1
Totals	3	..	3

PERRY COUNTY.

Month.	Comp.	Gas.	Dry.
October	1	1	..
November	1	1	..
Totals	2	2	..

MEIGS COUNTY.

Month.	Comp.	Gas.	Dry.
December	1	..	1

Recapitulation.

The wells in each county for the year 1915 were as follows:—

County.	Comp.	Oil wells.	Gas wells.	Dry holes.
Licking	48	..	42	6
Cuyahoga	515	13	433	69
Wayne	126	..	95	31
Ashland	88	1	60	27
Hocking	43	24	13	6
Vinton	41	6	21	14
Richland	32	..	20	10
Medina	28	4	13	11
Knox	13	1	7	5
Fairfield	7	..	4	3
Lorain	5	..	2	3
Holmes	3	..	..	3
Perry	2	..	2	..
Meigs	1	..	..	1
Totals	952	49	714	189
For 1914	768	46	590	132
Difference	184	3	124	57

The oil wells and production from each county during 1915 were as follows:—

County	Oil wells.	Oil Prod.
Hocking	24	1,235
Cuyahoga	13	215
Vinton	6	96
Medina	4	35
Knox	1	100
Ashland	1	5
Totals	49	1,686
For 1914	46	1,745
Difference	3	59

The gas wells and volume of natural gas for each county during 1915 were as follows:—

County.	Gas wells.	Volume cubic feet.
Licking	42	28,230,862
Cuyahoga	433	1,066,273,266
Wayne	95	298,787,513
Ashland	88	108,027,218
Hocking	13	14,913,619
Vinton	21	60,267,000
Richland	22	41,044,452
Medina	13	13,907,780
Knox	7	6,565,000
Fairfield	4	4,000,000
Lorain	2	650,000
Perry	2	2,400,000
Totals	714	1,645,066,710
For 1914	590	1,092,435,288
Difference	124	552,631,422

It has been over twenty years ago since the Central Ohio gas belt was first opened up, and the first development was in the vicinity of Sugar Grove, near Lancaster, in Fairfield county, but work was not as active as it has been for the past four or five years, as much territory has been added to the north end, where the greater activity has been displayed for a few years. Any gas well that will show a production of two million cubic feet is nowadays considered a gusher in the gas regions and is as prominent as a 100-barrel oil well, and for that reason the Central Ohio gas field is far above any other gas region in the country for the great number of gushers during the year past, which are given by months and by counties for 1915:—

LICKING COUNTY.

November.

Heisey Gas Company, No. 3 Crist tract, 2,000,000 cubic feet.

Heisey Gas Company, No. 1 Jones' tract, 2,500,000 cubic feet.

CUYAHOGA COUNTY.

January.

Theodore Kundtz, Lorain-Highland, 3,000,000 cubic feet.

Theodore Kundtz, Bunts-Triskett, 2,500,000 cubic feet.

Martin Mullin, Nicholas avenue, 2,000,000 cubic feet.

Highland Development Company, Warren road, 3,000,000 cubic feet.

John H. Orgill, Harrington road, 3,000,000 cubic feet.

John H. Orgill, Lorain-Storey, 2,000,000 cubic feet.

Ohio Producing Company, Lorain avenue, 4,000,000 cubic feet.

Ohio Producing Company, Triskett road, 2,500,000 cubic feet.

Lincoln Oil and Gas Company, Lorain-Herndon, 2,000,000 cubic feet.

M. Freshwater, West Park boulevard, 4,000,000 cubic feet.

National Carbon Company, Factory Site, 2,500,000 cubic feet. ?

Edward H. Tague, Puritas Springs, 8,200,000 cubic feet.

W. F. Minteer, Lorain avenue, 3,000,000 cubic feet.

Rushville Gas Company, Triskett road, 2,000,000 cubic feet.

Rushville Gas Company, Lorain-Barea, 3,000,000 cubic feet.

A. B. C. Oil and Gas Company, Warren road, 2,000,000 cubic feet.

John Kerch & Co., Lake-West 108th, 2,000,000 cubic feet.

F. L. Kennedy, Forest Bluff, 3,000,000 cubic feet.

E. M. Gray, Lake Bluff avenue, 3,000,000 cubic feet.

Gertrude Bramley, Lake-West 112th, 3,500,000 cubic feet.

Gertrude Bramley, Lake avenue, 3,000,000 cubic feet.

Erie Improvement Company, Madison avenue, 2,000,000 cubic feet.

W. F. Groose Company, Harrington-Lake Ry, 2,500,000 cubic feet.

Ruthven Development Company, West 130th, 2,000,000 cubic feet. ?

A. A. Ryan, Fisher-Brown, 2,000,000 cubic feet.

J. H. Hahn, Riverside Drive, 3,500,000 cubic feet.

Weiber & Brewer, Lake avenue, 2,500,000 cubic feet.

Weiber, Stahl & Root, Warren road, 2,000,000 cubic feet.

F. Zimmerman, Lake avenue, 2,500,000 cubic feet.

F. L. Nicholson, Rocky River road, 2,000,000 cubic feet.

Jefferson Park Oil and Gas Company, West 33d, 2,000,000 cubic feet.

Asling Oil and Gas Company, West Park boulevard, 2,500,000 cubic feet. ?

Harkness Oil and Gas Company, West 25th, 2,000,000 cubic feet.

Fidelity Gas Company, West Park boulevard, 3,000,000 cubic feet.

Fushinger Company, Midland-West 117th, 2,000,000 cubic feet.

B. Miller, Riverside Drive, 3,000,000 cubic feet.

West Park Gas Company, Lorain avenue, 3,500,000 cubic feet. ?

Lobaugh Company, South-Lorain, 2,000,000 cubic feet.

Lakewood Oil Company, South Lakewood, 2,000,000 cubic feet.

Puritas Gas Company, Harrington road, 2,500,000 cubic feet.

Harvest Gas Company, West 110th, 2,000,000 cubic feet.

Rockford Oil Company, Lorain-River road, 2,000,000 cubic feet.

Fish Gas Company, Lake Front avenue, 3,000,000 cubic feet. ?

Root Oil Company, Lorain avenue, 2,000,000 cubic feet.

Archean Development Company, Detriot avenue, 2,000,000 cubic feet.

Park Oil and Gas Company, Lorain-Osborne, 2,000,000 cubic feet.

Ohio Properties Company, West boulevard-Bertha, 4,000,000 cubic feet.

National Carbon Company, Seymour lots, 2,000,000 cubic feet.

T. J. Holman, Lake avenue, 2,500,000 cubic feet.

Lane Gas Company, West 136th, 2,000,000 cubic feet. ?

Theodore Kundtz, Bunts road, 2,000,000 cubic feet. ?

Snamp-Pressley Company, Lorain avenue, 2,500,000 cubic feet.

West Clifton Prod. Company, Clifton boulevard, 6,000,000 cubic feet.

M. M. Oil and Gas Company, Maplecliffe avenue, 5,000,000 cubic feet.

A. B. C. Oil and Gas Company, West boulevard, 2,500,000 cubic feet.

Martin Mullen, Harrington road, 4,000,000 cubic feet.

Freshwater & Gabriel, Triskett-Brown, 2,000,000 cubic feet.

February.

Theodore Kundtz, Lake Front, 3,000,000 cubic feet.

Theodore Kundtz, Fisher-Lorain, 2,500,000 cubic feet.

Martin Mullen, Barter, 2,500,000 cubic feet.

Martin Mullen, Center Ridge, 3,000,000 cubic feet.

C. J. Weideman, Center Ridge, 3,000,000 cubic feet.

Rocky River Development Company, Riverside, 6,000,000 cubic feet.

Rocky River Development Company, White lots, 2,000,000 cubic feet.

Albert Oil and Gas Company, Lorain-Ls. Ry., 2,750,000 cubic feet.

R. G. Floyd, Triskett-Munn, 2,000,000 cubic feet.

John H. Orgill, Kamms Corners, 3,000,000 cubic feet.

Ohio Producing Company, Sixt lots, 4,000,000 cubic feet.

C. L. Norton, Thompson lots, 3,250,000 cubic feet.

Highland Development Company, McGill lots, 2,500,000 cubic feet.

Rushville Gas Company, Lake avenue, 2,500,000 cubic feet.

M. Freshwater, Berea-Lindale, 2,500,000 cubic feet.

M. Freshwater, Harris lots, 2,000,000 cubic feet.

F. Pitcher, Marquardt lots, 2,000,000 cubic feet.

Barrett & Smith, Tyler lots, 6,000,000 cubic feet.

Edward H. Tague, Madison-Warren, 3,000,000 cubic feet.

R. E. Devny, Baggor lots, 2,500,000 cubic feet.

R. E. Devny, Triskett road, 2,500,000 cubic feet.

Lakewood Fuel Company, Shuster lots, 2,000,000 cubic feet.

G. S. Crider, Lake Front avenue, 2,000,000 cubic feet.

Root Oil Company, Lakeland avenue, 2,000,000 cubic feet.

B. B. Hathaway, Lorain avenue, 2,500,000 cubic feet.

J. F. Kelley, St. Augustine lots, 2,000,000 cubic feet.

G. E. Conkey, agent, Stranahan lots, 3,000,000 cubic feet.

W. S. Judson, Lupham lots, 2,500,000 cubic feet.

C. H. Matthews, Nielson lots, 2,000,000 cubic feet.

W. H. Clemenshaw, South street, 3,000,000 cubic feet.

Park Gas Syndicate, Clifton-Nickel Plate, 2,000,000 cubic feet.

Archean Development Company, Catabash lots, 2,500,000 cubic feet.

W. B. Slusser, Triskett road, 3,000,000 cubic feet.

Lincoln Gas Development Company, West Park boulevard, 3,000,000 cubic feet.

J. L. McNelley, Allen lots, 2,500,000 cubic feet.

G. C. McKinley, Madison-McKinley, 2,000,000 cubic feet.

J. T. Harvey, Carr lots, 2,000,000 cubic feet.

Erie Improvement Company, Gammel lots, 2,000,000 cubic feet.

West End Gas Company, Lorain avenue, 2,500,000 cubic feet.

South Street Oil and Gas Company, South avenue, 10,600,000 cubic feet.

Highland Development Company, Lorain-West 117th, 2,500,000 cubic feet.

Dufour & Heiber, Longeanau lots, 2,000,000 cubic feet.

M. Freshwater, Schullenberg lots, 2,500,000 cubic feet.

J. S. Gardner, Riverside Drive, 2,000,000 cubic feet.

Lndale Gas Company, Rosky lots, 2,000,000 cubic feet.

R. E. Gammel, Schlichers lots, 2,500,000 cubic feet.

Sinko Oil and Gas Company, Lorain avenue, 2,000,000 cubic feet.

R. E. Devny, Munn road, 2,000,000 cubic feet.

Lakewood Fuel Company, Barber lots, 2,900,000 cubic feet.

Cleveland Development Company, Peter lots, 2,500,000 cubic feet.

Highland Development Company, Leithers lots, 2,000,000 cubic feet.

C. J. Weideman, Center Ridge road, 3,000,000 cubic feet.

J. H. Hahn, Orth lots, 2,500,000 cubic feet.

West Cuyahoga Gas Company, McAllister lots, 3,000,000 cubic feet.

W. Diehl, Riverside-Hilliard, 2,000,000 cubic feet.

F. I. Kennedy, Lake Front, 2,000,000 cubic feet.

Limington Gas Company, Hopkins lots, 3,000,000 cubic feet.

March.

Theodore Kundtz, Fisher lots, 2,500,000 cubic feet.

Martin Mullen, Harrington lots, 2,000,000 cubic feet.

Warren Road Syndicate, Warren road, 2,000,000 cubic feet.

Rushville Gas Company, Jordan lots, 3,000,000 cubic feet.

A. R. Bullock, Bailey lots, 2,000,000 cubic feet.

William F. Grosse Company, Harrington lots, 2,000,000 cubic feet.

Donaldson Oil and Gas Company, West Park boulevard, 4,000,000 cubic feet.

Gorman Oil and Gas Company, Lakeland avenue, 2,000,000 cubic feet.

Highland Development Company, Clifton boulevard, 4,000,000 cubic feet.

Highland Development Company, Lake Front avenue, 3,000,000 cubic feet.

Highland Development Company, Bumgardner lots, 2,000,000 cubic feet.

Weiber, Stahl & Root, Stahl lots, 2,000,000 cubic feet.

W. F. Minteer, School lots, 4,000,000 cubic feet.

L. J. Bence, Settlement road, 2,000,000 cubic feet.

West Park Oil and Gas Company, Highland lots, 2,000,000 cubic feet.

Joseph Benson, Beier lots, 2,000,000 cubic feet.

Onoko Gas Company, Riverside Drive, 2,000,000 cubic feet.

J. H. Hahn, Riverside Drive, 2,000,000 cubic feet.

Irma Oil and Gas Company, Oestricher lots, 3,000,000 cubic feet.

Helena Gas Company, Dreyer lots, 3,500,000 cubic feet.

Martin Mullen, Teare lots, 2,500,000 cubic feet.

M. Freshwater, Berea road, 2,000,000 cubic feet.

Cline & Bramley, Aulenbach lots, 15,000,000 cubic feet.

Chandler Oil and Gas Company, Dahm lots, 2,000,000 cubic feet.

Charles Zettlemeyer, Riverside road, 2,000,000 cubic feet.

Theodore Kundtz, Golfrath lots, 3,000,000 cubic feet.

Kundtz & Hulse, Williams lots, 13,000,000 cubic feet.

Bartler Oil and Gas Company, Bartler lots, 2,000,000 cubic feet.

Colburn Gas Company, Lorain-River road, 2,000,000 cubic feet.

Invincible Gas Company, Kumms lots, 2,000,000 cubic feet.

April.

C. J. Weideman, South avenue, 3,000,000 cubic feet.

C. J. Weideman, Morbush lots, 3,000,000 cubic feet.

T. C. Pilcher, Riverside-Clairview, 2,000,000 cubic feet.

Fred Moore, Murray lots, 5,000,000 cubic feet.

J. D. Owens, Sixt lots, 6,000,000 cubic feet.

Kundtz & Hulse, West Park boulevard, 5,000,000 cubic feet.

Schrier Oil and Gas Company, West 110th, 10,000,000 cubic feet.

Ethel Oil and Gas Company, Ethel street, 7,500,000 cubic feet.

Benner Gas Company, Puritas road, 2,000,000 cubic feet.

L. O. G. Drilling Company, Lorain avenue, 2,000,000 cubic feet.

Zimmerman & Hahn, Berea road, 2,000,000 cubic feet.

Theodore Kundtz, Puritas road, 4,000,000 cubic feet.

Theodore Kundtz, Luetne lots, 5,000,000 cubic feet.

A. & F. Oil Company, Crestives road, 2,000,000 cubic feet.

Ohio-Penn Oil and Gas Company, Reese lots, 2,000,000 cubic feet.

Ohio-Penn Oil and Gas Company, DuCumbe lots, 2,000,000 cubic feet.

Warren Road Oil Company, Warren road, 2,000,000 cubic feet.

Medina Gas Company, Hinckley lots, 2,000,000 cubic feet.

L. J. Bence, Settlement road, 3,000,000 cubic feet.

Rocky River Development Company, McBeth lots, 2,000,000 cubic feet.

Edward H. Tague, Puritas Springs road, 6,000,000 cubic feet.

May.

C. J. Weideman, Palen & Deverauz lots, 5,000,000 cubic feet.

Rocky River Development Company, Spriggs lots, 2,000,000 cubic feet.

W. H. Clemenshaw, Clemenshaw, 5,000,000 cubic feet.

Rocky River Development Company, Gasser lots, 5,000,000 cubic feet.

Theodore Kundtz, Christensen lots, 2,000,000 cubic feet.

Theodore Kundtz, Fisher lots, 2,000,000 cubic feet.

Barrett Bros., Leonard lots, 7,500,000 cubic feet.

Unknown parties, Meck lots, 5,000,000 cubic feet.

Rocky River Development Company, Vaneck farm, 10,000,000 cubic feet.

Sylvian Grove Gas Company, Orchard Grove, 2,000,000 cubic feet.

Loomis Oil and Gas Company, Sacramento road, 3,000,000 cubic feet.

Kundtz & Hulse, Bramley lots, 7,000,000 cubic feet.

Rocky River Development Company, Riverside Drive, 2,000,000 cubic feet.

C. J. Weideman, Marouch lots, 6,000,000 cubic feet.

A. & M. Oil Company, Spice lots, 2,000,000 cubic feet.

Benner Oil and Gas Company, Miltner lots, 10,000,000 cubic feet.

Murray Hill Oil and Gas Company, Oelschlegel lots, 5,000,000 cubic feet.

Upson Fuel and Gas Company, Volk lots, 5,000,000 cubic lots.

Meldren & Son, Impet lots, 2,000,000 cubic feet.

June.

Dufour & Hubner, Rocky River road, 2,500,000 cubic feet.

Rocky River Development Company, Rocky River road, 4,000,000 cubic feet.

A. O. & O. Gas Company, Perkins lots, 7,000,000 cubic feet.

Theodore Kundtz, Feuchter lots, 10,000,000 cubic feet.

Theodore Kundtz, Leni Weber lots, 10,000,000 cubic feet.

Luverne Gillette, Alber lots, 2,000,000 cubic feet.

Barrell Bros., Taggart lots, 3,000,000 cubic feet.

A. & F. Oil Company, Puritas Springs, 3,000,000 cubic feet.

J. H. Hahn, Grief lots, 2,000,000 cubic feet.

W. H. Clemenshaw, South street, 5,000,000 cubic feet.

Sylvan Gas Company, Franklin street, 2,000,000 cubic feet.

J. D. Ownes & Co., Harrington road, 12,000,000 cubic feet.

J. W. Cushing, Keyes lots, 4,000,000 cubic feet.

Theodore Kundtz, Lorain avenue, 2,000,000 cubic feet.

Rocky River Development Company, Mastic road, 4,000,000 cubic feet.

Bock & Kendall, Harrington road, 4,000,000 cubic feet.

July.

Rocky River Development Company, Wenban lots, 2,000,000 cubic feet.

Theodore Kundtz, Center Ridge road, 3,000,000 cubic feet.

Kundtz & Hulse, Whitney lot, 3,000,000 cubic feet.

Caldwell Oil and Gas Company, Crestview-South, 5,000,000 cubic feet.

W. H. Clemenshaw, South street, 2,500,000 cubic feet.

Cortz & Botkin, Loga lots, 5,000,000 cubic feet.

J. H. Hahn, Lorain-Riverside, 3,000,000 cubic feet.

August.

Rocky River Development Company, Star Realty Company, 5,000,000 cubic feet.

Rocky River Development Company, Rocky River road, 5,000,000 cubic feet.

Rocky River Development Company, Mastick-Mitchell, 2,500,000 cubic feet.

J. J. Crawford, Baker lots, 3,000,000 cubic feet.

Kundtz & Hulse, Crestview, 5,000,000 cubic feet.

Community Land Company, Hussey lots, 4,000,000 cubic feet.

C. W. Cushing, Crestview, 5,000,000 cubic feet.

Bock & Rendall, Puritas Springs, 10,000,000 cubic feet.

Kundtz & Hulse, Harrington road, 2,000,000 cubic feet.

Stover Drilling Company, Rockaberry avenue, 2,000,000 cubic feet.

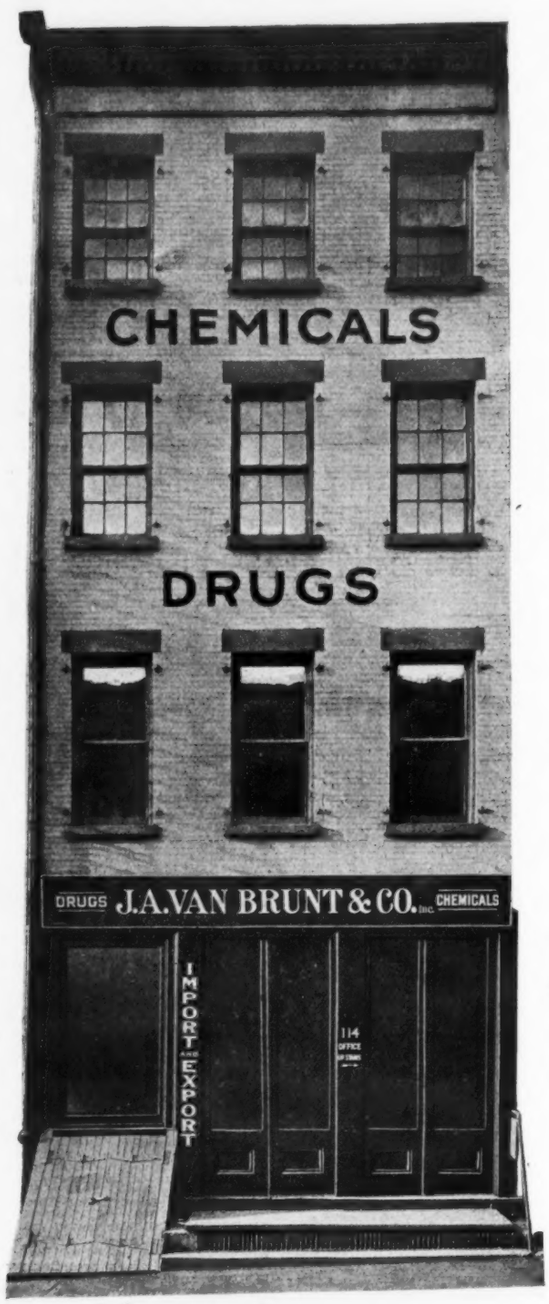
Bartlett Bros., Puritas Springs, 4,000,000 cubic feet.

Ponting Oil and Gas Company, Poting lots, 3,000,000 cubic feet.

Kurdtz & Hulse, Center Ridge road, 5,000,000 cubic feet.

J. A. VAN BRUNT & CO., Inc.

Beg to announce their removal from 92 William Street to 114 John Street, New York, where they will be in a better position than ever before to accommodate their customers.



Buyers and Sellers and General Headquarters for

Yellow Prussiate of Soda
Yellow Purssiate of Potash
Chloride of Lime
Caustic Soda
Bichromate of Soda
Bichromate of Potash
Chlorate of Soda
Chlorate of Potash

Carbonate of Potash (all grades)
Caustic Potash
Oxalic Acid
Sulphate of Copper
Citric Acid
Tartaric Acid
Tin Crystals

Bromide of Soda
Bromide of Potash
Bromide of Ammonia
Bromide of Strontia
Caffeine
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J. A. Van Brunt & Co., Inc.

114 John Street **NEW YORK**

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Swift & Co., Swift lots, 12,700,000 cubic fet.
East Ohio Gas Company, Rocky-Storey, 3,000,000 cubic feet.
Johnson & Stadler, Lynndale road, 6,000,000 cubic feet.
Kundtz & Hulse, Northview road, 3,000,000 cubic feet.
Logan Gas, Clague, 5,000,000 cubic feet.

September.
East Ohio Gas Company, Engle-Holland, 2,000,000 cubic feet.
Victory Oil and Gas Company, Prospect road, 8,000,000 cubic feet.
Theodore Kundtz, Cedar-Grayton, 2,500,000 cubic feet.
Transit Oil and Gas Company, Puritas road, 3,000,000 cubic feet.
C. E. Wolfe, Holle lots, 4,000,000 cubic feet.
J. E. Matthews, Perkins lots, 2,000,000 cubic feet.
East Ohio Gas Company, Five Points, 3,000,000 cubic feet.
Kundtz & Hulse, Cresview-Harrington, 3,500,000 cubic feet.
Rocky River Development Company, Middleburg, 3,000,000 cubic feet.

October.
Rocky River Development Company, Coffinberry lots, 3,000,000 cubic feet.
Berea Pipe Line Company, Brook Park-Smith, 2,500,000 cubic feet.
Kundtz & Hulse, Wagar-Center Ridge, 2,000,000 cubic feet.
Melrose Oil and Gas Company, Brook Park-Engle, 2,500,000 cubic feet.
Butler Bros., Harrington road, 4,000,000 cubic feet.
J. W. Cushing, Center Ridge-Wagar, 3,000,000 cubic feet.
Bortner & Murphy, Wooster road, 2,000,000 cubic feet.
Kundtz & Hulse, Northview-Center Ridge, 2,500,000 cubic feet.
Henrietta Oil and Gas Company, Rocky River road, 2,500,000 cubic feet.
W. L. Benson, Brook Park-Engle, 2,000,000 cubic feet.
Brook Park Oil and Gas Company, Brook Park, 5,000,000 cubic feet.
Rocky River Development Company, Grayton road, 5,000,000 cubic feet.
Logan Gas Company, No. 2 Clague, 2,750,000 cubic feet.

November.
M. E. Lobaugh, Five Points-Grayton, 2,500,000 cubic feet.
Kundtz & Hulse, Center Ridge, 3,000,000 cubic feet.
Berea Pipe Line Company, Grayton-Five Points, 2,000,000 cubic feet.
John Fishel, Center Ridge, 2,000,000 cubic feet.
Melrose Oil and Gas Company No. 2, Brook Park-Engle, 5,000,000 cubic feet.
O. A. Stearns, Brook Park, 2,500,000 cubic feet.
Brook Park Oil and Gas Company No. 2, Brook Park, 2,000,000 cubic feet.
Bock & Randall, Harrington, 3,000,000 cubic feet.
East Ohio Gas Company, Five Points, 2,000,000 cubic feet.
American Agr. Chemical Company, Belt line, 5,000,000 cubic feet.
Meldren & Son, Wagar-Center Ridge, 5,000,000 cubic feet.
Cameron & Watson, Wagar-Center Ridge, 3,000,000 cubic feet.
E. M. W. O. and G. Co., Five Points, 2,000,000 cubic feet.
Corts & Bodkin, Brook Park-Engle, 2,500,000 cubic feet.
J. D. Owens, Prospect, 2,500,000 cubic feet.
Maple Leaf Oil and Gas Company, Brook Park, 2,500,000 cubic feet.
L. G. Neely, Brook Park-Smith, 2,000,000 cubic feet.
H. A. Dempsey, Potter-West, 25th 2,000,000 cubic feet.
Wagar road, J. W. Cushing, 2,000,000 cubic feet.
Logan Gas Company, Bidwell, 10,000,000 cubic feet.

December.
Rushville Gas Company, Harrington road, 3,000,000 cubic feet.
Rocky River Development Company, Brook Park-Smith, 3,500,000 cubic feet.
L. G. Neely, Brook Park-Engle, 5,000,000 cubic feet.
L. G. Neely, Brook Park, 3,000,000 cubic feet.
Maple Leaf Oil and Gas Company, Engle road, 2,500,000 cubic feet.
East Ohio Gas Company, Berea road, 2,000,000 cubic feet.
Maple Leaf Oil and Gas Company, Hummell road, 2,000,000 cubic feet.
Central Mayfield Company, Brook Park, 3,000,000 cubic feet.
Berea Pipe Line Company, Hummell-Engle, 2,500,000 cubic feet.
Melrose Oil and Gas Company, No. 3, Brook Park, 5,000,000 cubic feet.
Brook Park Gas Company, Brook Park, 2,000,000 cubic feet.
C. W. Lander, Center Ridge-Wagar, 2,000,000 cubic feet.
Kundtz & Hulse, Five Points, 2,000,000 cubic feet.
W. L. Benson, Hummell-Engle, 4,000,000 cubic feet.
Rushville Gas Company, Center Ridge, 3,000,000 cubic feet.
Rocky River Development Company, Berea road, 2,500,000 cubic feet.
Logan Gas Company, No. 3, Clague, 3,500,000 cubic feet.
Kundtz & Hulse, Laura Farr, 2,000,000 cubic feet.
J. F. Harvey & Co., S. Pease farm, 3,000,000 cubic feet.

Wayne County.

January.
Medina Gas Company, Becker tract, 3,000,000 cubic feet.
Murphy Bros., No. 2, Silver tract, 5,000,000 cubic feet.
Ohio Oil Company, Warner tract, 5,000,000 cubic feet.
Plymouth Oil and Gas Company, No. 2, Piper tract, 3,000,000 cubic feet.
Highland Gas Company, Chambers tract, 3,000,000 cubic feet.

February.
Logan Gas Company, Lemaster tract, 3,250,000 cubic feet.
Ohio Fuel Gas Company, No. 2, Presiter tract, 2,750,000 cubic feet.
Ohio Fuel Gas Company, Warner tract, 2,500,000 cubic feet.
Ohio Fuel Gas Company, No. 2, Leaman tract, 3,000,000 cubic feet.
Arco Oil and Gas Company, No. 1, Ganz tract, 7,000,000 cubic feet.
Reese & Sperry, No. 1, Smalley tract, 3,750,000 cubic feet.
Arco Oil and Gas Company, No. 1, Heitman tract, 7,000,000 cubic feet.
Plymouth Oil and Gas Company, No. 1, Messmore tract, 3,600,000 cubic feet.
East Ohio Gas Company, No. 1, Piper tract, 7,000,000 cubic feet.

March.
Ohio Fuel Gas Company, No. 1, Heffelfinger tract, 5,500,000 cubic feet.
Plymouth Oil and Gas Company, No. 1, Moore tract, 12,000,000 cubic feet.

April.
Wooster Gas Company, Umstead tract, 4,000,000 cubic feet.
Ohio Fuel Gas Company, Funk tract, 3,250,000 cubic feet.

May.
Slagel-Curry Company, Mowery tract, 2,500,000 cubic feet.
Medina Gas Company, Hardy tract, 2,500,000 cubic feet.

July.
Slagel-Curry Company, Kinney tract, 8,000,000 cubic feet.
Medina Gas Company, Henderson tract, 6,000,000 cubic feet.
Plymouth Oil and Gas Company, Foltz tract, 8,000,000 cubic feet.
Plymouth Oil and Gas Company, No. 1, Bucher tract, 4,000,000 cubic feet.

August.
Ohio Fuel Gas Company, Aukerman tract, 2,000,000 cubic feet.
Plymouth Oil and Gas Company, No. 2, Bucher tract, 6,000,000 cubic feet.
Plymouth Oil and Gas Company, Schaff tract, 6,000,000 cubic feet.

September.
Medina Gas Company, France tract, 7,500,000 cubic feet.
Plymouth Oil and Gas Company, No. 3, Bucher tract, 8,500,000 cubic feet.
Plymouth Oil and Gas Company, No. 4, Bucher tract, 8,500,000 cubic feet.
Plymouth Oil and Gas Company, Sprowls tract, 8,000,000 cubic feet.
Arco Oil and Gas Company, Lindsay tract, 25,000,000 cubic feet.
Arco Oil and Gas Company, Pleasant Home tract, 2,000,000 cubic feet.

October.
Plymouth Oil and Gas Company, Vaugh tract, 3,500,000 cubic feet.
Ohio Fuel Gas Company, Dague tract, 2,000,000 cubic feet.
Murphy Bros., Martin tract, 3,000,000 cubic feet.
Logan Gas Company, Shamp tract, 6,000,000 cubic feet.
Ohio Fuel Gas Company, No. 2, Symser tract, 3,000,000 cubic feet.
Medina Gas Company, No. 2, Henderson tract, 12,500,000 cubic feet.
Medina Gas Company, Snyder tract, 9,500,000 cubic feet.
Plymouth Oil and Gas Company, Riggs tract, 2,000,000 cubic feet.

November.
Logan Gas Company, McVicker tract, 4,000,000 cubic feet.
Ohio Fuel Gas Company, Barnard tract, 5,750,000 cubic feet.
Ohio Fuel Gas Company, Kinney tract, 2,250,000 cubic feet.
Ohio Fuel Gas Company, Gearhart tract, 2,750,000 cubic feet.

December.
Murphy Bros., No. 2, Martin tract, 2,000,000 cubic feet.
Logan Gas Company, No. 2, Shamp tract, 5,000,000 cubic feet.

Ashland County.

January.
Medina Gas Company, Stouder tract, 2,000,000 cubic feet.

March.
Honey Creek Oil and Gas Company, Carey tract, 3,500,000 cubic feet.
Logan Gas Company, Helbert tract, 5,500,000 cubic feet.

June.
Logan Gas Company, Groff tract, 3,000,000 cubic feet.
Logan Gas Company, Thomas tract, 2,250,000 cubic feet.
Ohio Fuel Gas Company, Woodhill tract, 5,000,000 cubic feet.
Medina Gas Company, No. 2, Souders tract, 3,000,000 cubic feet.
Logan Gas Company, McClure tract, 3,750,000 cubic feet.

July.
Logan Gas Company, Heichel tract, 5,000,000 cubic feet.

August.
Ohio Fuel Gas Company, Brandt tract, 5,500,000 cubic feet.

September.
Logan Gas Company, Scott tract, 2,000,000 cubic feet.

October.
Logan Gas Company, No. 2, Budd tract, 2,750,000 cubic feet.
Logan Gas Company, Hiner tract, 4,500,000 cubic feet.
Logan Gas Company, Ritchie tract, 3,250,000 cubic feet.
Ohio Fuel Gas Company, Ewing tract, 8,000,000 cubic feet.
Ohio Fuel Gas Company, Yocum tract, 2,750,000 cubic feet.

November.
Logan Gas Company, Shaffer tract, 2,500,000 cubic feet.

December.
Ohio Fuel Gas Company, No. 2, Ewing tract, 3,800,000 cubic feet.

Hocking County.

August.
Logan Gas Company, Karshner tract, 7,000,000 cubic feet.

Vinton County.

March.
Central Contract Company, No. 1, Dunkle tract, 3,000,000 cubic feet.

June.
Central Contract Company, No. 2, Dunkle tract, 6,000,000 cubic feet.
Central Contract Company, Wharf tract, 7,000,000 cubic feet.
Central Contract Company, Bishop tract, 3,000,000 cubic feet.

August.
Ohio Fuel Gas Company, Earnhart tract, 4,500,000 cubic feet.

September.
Chartiers Oil Company, No. 103, Hocking Products tract, 3,000,000 cubic feet.

October.
Ohio Fuel Gas Company, Miller tract, 8,145,000 cubic feet.
Central Contract Company, No. 2, Dollison tract, 2,500,000 cubic feet.

November.
Ohio Fuel Gas Company, Martindill tract, 10,000,000 cubic feet.

December.
Ohio Fuel Gas Company, Johnson tract, 3,500,000 cubic feet.

Richland County.

July.
Logan Gas Company, Pealer tract, 4,500,000 cubic feet.
Logan Gas Company, Baughman tract, 2,000,000 cubic feet.

August.
Ohio Fuel Gas Company, Sheely tract, 3,000,000 cubic feet.

September.
Logan Gas Company, Critchfield tract, 5,750,000 cubic feet.
Logan Gas Company, Forbes tract, 2,250,000 cubic feet.

October.
Ohio Fuel Gas Company, No. 2, Gates tract, 4,500,000 cubic feet.
Logan Gas Company, Hogan tract, 2,250,000 cubic feet.

November.
Ohio Fuel Gas Company, Hazlett tract, 4,500,000 cubic feet.

Medina County.

August.
Ohio Fuel Gas Company, Chapman tract, 2,500,000 cubic feet.

October.
Medina Gas Company, Hubbard tract, 2,000,000 cubic feet.

November.
Logan Gas Company, Steele tract, 2,750,000 cubic feet.

Knox County.

April.
Upham Gas Company, Hively tract, 2,500,000 cubic feet.

Fairfield County.

October.
Ohio Fuel Gas Company, Brinson tract, 2,000,000 cubic feet.

Oil Gushers.

Oil gushers were few and far between in the Central Ohio field during the year of 1915. In Knox county, in June the Farbing Drilling Company's No. 2 Barnes tract produced 100 barrels.

In Hocking County.—In April, the Preston Oil Company's No. 1 Shaw tract produced 150 barrels; same company's No. 2, Stiers tract, produced 170 barrels, and No. 2, Shaw tract, 300 barrels, both finished in September. In October the same company's No. 9 on the Brick and Terra Cotta tract, produced 130 barrels. In November, same company's No. 1, Connor tract, produced 150 barrels. In December, same company's No. 1, Loomis tract, produced 200 barrels; No. 3, Stiers tract, 260 barrels; No. 4, same tract, 260 barrels, and No. 3, Shaw tract, 200 barrels.

NORTHWESTERN OHIO FIELDS.

in the petroleum fields of Northwestern Ohio during the year of 1915 there was a heavy falling off in finished wells, the number being the smallest for any year since the field become listed as an old field away back in the early '90s. Since the oil work started in the town of Lima in 1884 there has been a total of 67,284 wells finished in the field, of which 58,815 are or were oil producing wells and 8,469 were either gas or dry holes, which is a most wonderful record for any field for thirty-one years. The largest production known monthly in this field was above 2,000,000 barrels in 1896, and from that date the wells commenced to dwindle until they became very small producers.

The rapid advance in the price of oil near the close of 1915 should have a tendency for more active work during the new year although there is not a vast amount of territory to drill over unless some new additions are made to the field in a wildcat way.

The wells for the year of 1915 were distributed by months as follows:—

Month.	Comp.	Prod.	Gas.	Dry.
January	10	68	..	1
February	24	845	2	8
March	15	178	1	2
April	18	332	..	2
May	19	258	1	2
June	16	287	1	1
July	21	141	3	6
August	25	273	..	4
September	22	700	..	..
October	24	592	1	2
November	39	686	1	..
December	27	246	..	3
Totals	260	4,586	10	26
For 1914	861	9,318	16	69
Difference	601	4,732	6	43

Producing oil wells, 224.
Average production per well per day, 20½ barrels.

The above wells were distributed by the various counties each month during the year as follows:—

WOOD COUNTY.

Month.	Comp.	Prod.	Gas.	Dry.
January	4	25	..	..
February	12	289	..	..
March	7	47	..	1
April	10	123	..	1
May	8	125	..	..
June	7	130	1	..
July	10	102	2	1
August	13	210	..	1
September	12	187	..	..
October	15	434	1	1
November	15	305	..	..
December	14	124	..	1
Totals	127	2,101	4	6
For 1914	298	3,513	6	19
Difference	171	1,412	2	13

HANCOCK COUNTY.

Month.	Comp.	Prod.	Dry.
January	2	30	..
February	3	35	1
March	1	5	..
April	1	35	..
May	3	25	..
June	5	36	..
July	2	10	1
August	7	37	2
September	5	30	..
October	2	15	..
November	6	139	..
December	1	15	..
Totals	38	412	4
For 1914	144	1,543	24
Difference	106	1,131	20

SANDUSKY COUNTY.

Month.	Comp.	Prod.	Dry.
January	2	8	..
February	3	11	..
March	3	16	..
April	2	7	..
Map	4	7	1
June	1	1	..
July	2	4	..
August	2	10	..
September	1	5	..
October	3	13	..
November	2	10	..
December	3	14	..
Totals	28	106	1
For 1914	152	764	7
Difference	124	658	6

SENECA COUNTY.

Month.	Comp.	Prod.	Dry.
January	2	5	1
February	1	500	..
March	1	100	..
April	2	150	..
May	1	100	..
June	2	120	..
July	4	25	2
September	2	450	..
October	3	110	1
November	4	94	..
December	2	....	2
Totals	24	1,654	6
For 1914	29	713	6
Difference	5	941	..

ALLEN COUNTY.

Month.	Comp.	Prod.	Dry.
October	1	20	..
November	4	50	..
December	4	50	..
Totals	9	120	..
For 1914	75	762	4
Difference	66	642	4

AUGLAIZE COUNTY.

Month.	Comp.	Prod.	Gas.	Dry.
February	1	10	..	..
March	....	....	..	1
April	1	2	..	..
July	2	....	..	2
November	3	13	1	..
Totals	8	25	1	3
For 1914	30	285	..	6
Difference	22	260	1	3

VAN WERT COUNTY.

Month.	Comp.	Prod.	Dry.
June	1	....	1
November	3	35	..
December	2	23	..
Totals	6	58	1
For 1914	45	530	4
Difference	39	472	3

LUCAS COUNTY.

Month.	Comp.	Prod.	Gas.	Dry.
February	1	....	1	..
July	1	....	1	..
August	2	8	..	1
September	1	8	..	..
November	1	10	..	..
Totals	6	26	2	1
For 1914	43	791	..	3
Differenre	37	765	2	2

OTTAWA COUNTY.

Month.	Comp.	Prod.	Gas.
March	1	10	..
April	1	15	..
May	2	1	1
December	1	20	..
Totals	5	46	1
For 1914	17	117	..
Difference	12	71	1

MERCER COUNTY.

Month.	Comp.	Prod.	Dry.
February	1	....	1
August	1	8	..
September	1	20	..
November	1	10	..
Totals	4	38	1
For 1914	17	183	2
Difference	13	145	1

WYANDOT COUNTY.

Month.	Comp.	Prod.	Gas.	Dry.
February	2	....	1	1
March	1	....	1	..
Totals	3	....	2	1
For 1914	2	....	2	..
Difference	1	....	..	1

ERIE COUNTY.

Month.	Comp.	Prod.	Dry.
April	1	....	1
May	1	....	1
Totals	2	....	2

In the year of 1915 there were 663 old wells pulled out and abandoned, as they had exhausted the oil in the wells, and were by counties as follows:

Abandoned Wells.

Wood county	233
Allen county	101
Hancock county	87
Wyandot county	75
Sandusky county	40
Van Wert county	35
Auglaize county	28
Ottawa county	27
Lucas county	20
Mercer county	17
Total	663

The wells of 100 barrels or more in the Northwestern Ohio fields were distributed as follows:—

WOOD COUNTY.
February.
S. Lloyd McAfee, 150 barrels.
August.
Ohio Oil Company, 150 barrels.
September.
Ohio Oil Company, 100 barrels.
October.
Ohio Oil Company, 170 barrels; Montgomery & Stitt, 150 barrels.
November.
Ohio Oil Company, 100 barrels.

SENECA COUNTY.
February.
Sun Company, 500 barrels.
March.
Sun Company, 125 barrels.
April.
Oil City Trust Company, 120 barrels.
May.
Sun Company, 125 barrels.
September.
Sun Company, 350 barrels; Sun Company, 100 barrels.
October.
Sun Company, 100 barrels.

INDIANA FIELDS.

But little work was accomplished in the older Indiana petroleum fields during the year 1915, that is in what is known as the old Trenton Rock fields, where a total of 35,992 wells were drilled from the latter '80s to the present time, and were it not for the new work finished in the western section of the State in Sullivan, Vigo, Gibson, Knox and other counties, the development work would not be worth the looking over. The failure of the gas in the eastern part of the State has been a dead letter to that once famous producing field, where close to 10,000,000 barrels of oil was produced in a year, but those days are a thing of the past and newer fields must be looked for. The year in review shows that 192 wells were finished, of which 87 were dry and eight were gas, leaving 97 oil wells with a production of 2,521 barrels. These wells were drilled by months as follows:—

Month.	Comp.	Prod	Gas.	Dry.
January	14	62	..	9
February	16	115	2	4
March	15	151	1	2
April	17	160	..	7
May	13	137	..	6
June	14	195	1	8
July	19	1,281	1	10
August	9	15	1	6
September	19	126	1	13
October	12	327	..	6
November	23	443	..	13
December	21	662	1	3
Totals	192	2,521	8	87
For 1914	744	8,477	14	259
Difference	552	3,956	6	172

Producing oil wells, 97.
Average per well per day, 25 1/6 barrels.

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Salicylic Acid	Sodium Salicylate
Salol	Synthetic Oil Wintergreen
Phenolphthalein	Acetphenetidin
Antipyrine	Hexamethylenetetramine
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Caustic Potash	Bicarbonate Soda
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The above wells were distributed by months during the year in each district as follows:—

SULLIVAN DISTRICT.

Month.	Comp.	Prod.	Gas.	Dry.
January	9	47	..	5
February	11	99	2	2
March	14	131	1	2
April	14	160	..	4
May	7	45	..	3
June	11	50	..	8
July	11	50	..	8
August	5	10	..	4
September	8	..	..	8
October	7	225	..	3
November	12	393	..	4
December	13	475	1	1
Totals	122	1,720	4	52
For 1914	625	7,336	5	219
Difference	503	5,616	1	167

OAKLAND CITY DISTRICT.

Month.	Comp.	Prod.	Gas.	Dry.
March	1	20	..	..
June	1	..	1	..
July	3	30	1	1
September	5	72	..	1
October	2	2	..	1
November	7	25	..	6
December	3	52	..	1
Totals	22	201	2	11
For 1914	15	136	1	3
Difference	7	65	1	8

RILEY DISTRICT.

Month.	Comp.	Prod.	Dry.
January	1	15	..
April	2	..	2
May	2	..	2
June	2	110	..
July	2	20	1
September	2	50	1
October	1	100	..
November	1	25	..
December	4	135	..
Totals	17	545	4
For 1914	5	50	2
Difference	12	495	2

PRINCETON DISTRICT.

Month.	Comp.	Prod.	Dry.
January	1	..	1
February	1	10	..
July	2	13	..
August	1	5	..
September	1	..	1
October	3	..	1
November	1	..	1
Totals	9	28	5
For 1914	3	9	..
Difference	6	19	5

VINCENNES DISTRICT.

Month.	Comp.	Prod.	Dry.
January	1	..	1
February	1	1	..
May	2	..	2
August	1	..	1
November	1	..	1
Totals	6	1	5
For 1914	6	..	6
Difference	..	1	1

DAVIESS DISTRICT.

Month.	Comp.	Prod.	Dry.
May	1	..	1
July	1	15	..
August	1	..	1
November	1	..	1
Totals	4	15	3

MUNCIE DISTRICT.

Month.	Comp.	Prod.	Dry.
February	1	5	..
September	1	..	1
Totals	2	5	1
For 1914	32	545	8
Difference	30	540	7

CAMDEN DISTRICT.

Month.	Comp.	Prod.	Gas.	Dry.
August	1	..	1	..
September	1	4	..	..
Totals	2	4	1	..
For 1914	21	166	3	4
Difference	19	162	2	4

PARKER CITY DISTRICT.

Month.	Comp.	Prod.	Gas.	Dry.
May	1	2	..	..
September	1	..	1	..
Totals	2	2	1	..
For 1914	7	80	2	1
Difference	5	78	1	1

WARRICK DISTRICT.

Month.	Comp.	Prod.	Dry.
January	1	..	1
April	1	..	1
Totals	2	..	2

CHAMPAIGN DISTRICT.

Month.	Comp.	Prod.	Dry.
February	2	..	2

CLAY DISTRICT.

Month.	Comp.	Prod.	Dry.
December	1	..	1

MARION DISTRICT.

Month.	Comp.	Prod.	Dry
January	1	..	1
For 1914	4	27	1
Difference	3	27	..

The abandoned wells which are worthless for pumping purposes further have been pulled out from each district as follows for 1915:—

Keystone district	301
Marion district	148
Geneva district	80
Montpelier district	57
Huntington district	53
Muncie district	42
Parker City district	17
Camden district	15
Princeton district	5
Oakland City district	3
Total	721

The Indiana wells of 100 barrels or more were as follows by months:—

SULLIVAN COUNTY.

February.
Ohio Oil Company, 120 barrels.

March.
W. C. Kennedy Company, 150 barrels.

April.
W. C. Kennedy Company, 150 barrels.

October.
Ohio Oil Company, 135 and 115 barrels.

November.
Ohio Oil Company, 110 and 110 barrels.

RILEY DISTRICT.

May.
A. B. Bement, 100 barrels.

June.
Bell Bros. & Barnes, 115 barrels.

October.
Bell Bros. & Barnes, 100 barrels.
Webb & Gliney, 120 barrels.

KENTUCKY-TENNESSEE.

A slump in completed wells and new production marked the 1915 season in the Kentucky-Tennessee petroleum fields, as compared with the record of the preceding year. All the proven fields showed a decline in new work, due entirely to the demoralized condition prevailing in the industry during the greater part of the year and lack of profitable prices. The industry reached the lowest level during the spring, when very few rigs were in commission in any portion of the field. The upward trend of prices during the summer brought a revival, and as the fall season approached, great activity was shown, developments being increased in all the older producing areas and much outlying drilling revealing new sources of production.

The most important results marking the 1915 season were discoveries in Estill county, Ky., and Scott county, Tenn., opening entirely new fields and marking the most valuable extensions to the productive area since the industry was established on a permanent basis.

Operations in the main fields of Wayne, Wolfe, Morgan and Lawrence counties, Ky., were featureless throughout the year, no wells of large capacity being drilled in any of these counties. These are districts of many years' development. No extensions of importance were proven, while repeated punctures within established lines have so weakened the gas pressure that an entire absence of gushing wells was noted. The big strikes of the year were made in the newer fields. Several wells showing up for over one hundred barrels daily were drilled in Estill and Scott counties, the feature strikes of the year being a 200-barrel well in the vicinity of Oneida, Scott county, and a strike of similar capacity in the Cow Lick district, Estill county. Both strikes were gushers and were drilled near the close of 1915.

The year was featureless from a wildcatting standpoint until November and December, when the rapid increase in petroleum prices caused an influx of operators throughout the field. Restoration of normal activity was just beginning toward the end of the year, and too late to appreciably affect the year's showing in production.

Completions in the developed districts for 1915 totaled 101, of which forty-three were failures, one a gasser and a total new daily yield of 978 barrels recorded. Twelve new completions were credited to the Tennessee end of the field, seven of which were failures. Kentucky counties figuring in completed wells included Wayne, Wolfe, Lawrence, Morgan, Estill, Webster, Daviss, Allen and Edmonson. A dozen other counties were figuring in the area of activity during December and the close of 1915 showed decidedly the best prospects Kentucky counties have ever had for developing into a greater petroleum field.

A summary of monthly completed work in the Kentucky end of the field is as follows:—

Month.	Completions.	Production.	Dry.
January	4	1	3
February	8	124	4
March	4	31	1
April	5	119	1
May	19	128	9
June	11	24	6
July	6	14	2
August	4	25	1
September	3	6	3
October	8	53	3
November	10	30	3
December	10	173	2
Totals	92	728	36

The wells for Tennessee:—

Month.	Completions.	Production.	Dry.
July	4	150	1
September	1	..	1
October	3	100	..
November	2	..	2
December	2	..	2
Totals	12	250	7

Over half Kentucky's completed work was credited to the Wayne county field, in the southern end, with a total of fifty-eight completions, twenty-seven of which were dry, and a new production of 408 barrels. Operations in this county were mainly restricted to the developed portions of the lower end, near Tennessee, districts of the upper end of the county being neglected. Shallow sand operations at Griggin and Pisgah furnishing the bulk of completed work. Almost no advance operations were shown in Wayne county during the year, the majority of the strikes being made within defined lines. A few tests were drilled late in the year toward the Tennessee border, and a spirited leasing campaign was shown in the district intervening between Wayne county field and the Oneida district of Scott county, Tenn. Within this territory, twenty miles in extent, many wildcat wells will be drilled as soon as the season is favorable for moving machinery. Operators hope during the year to connect the two fields, which show the same sand.

Deep sand developments sank to a very low level during the year, the fields of Wolfe, Morgan and Lawrence counties showing very light results. Drilling in these fields is very expensive and production was hardly profitable while petroleum was below the dollar mark. The majority of completions were made in Wolfe county, a total of eleven being shown, of which only one was a failure. The daily new production aggregated fifty-four barrels. The new work in Wolfe county was restricted almost entirely to the Stillwell end of the pool, about five miles from the old Campton district. Ten new wells were drilled in Lawrence county, of which two were failures. The yield was seventy-eight barrels. A promising extension in that county is the Fallsburg pool, a distinct development several miles apart from the old Busseyville district. The wells in the new district are somewhat better in yield than the original strikes around Busseyville. The old Morgan county field, once the sensation of the deep sand area, was almost a failure during the year, only three new completions being made, one being a failure. A new production of only ten barrels was developed. This district has been proven very spotted. The three deep sand districts were limits of the Cannel City pool.

completions were made within the defined showing a revival in activity near the end of the year, due to the boost in prices.

Evidences of reviving life in the old producing fields of Knox, Whitley and Cumberland counties, Southeastern Kentucky, attended rising prices. These counties failed to figure in completions during 1915, with the exception of a good gas strike in the Knox county field, but new work is now being started and the counties, once the mainstay of Kentucky, are expected to experience a come-back in production during the coming year which will place them again in the productive districts. Close to one thousand wells have been drilled in Knox, Whitley and Cumberland counties in former years. Outside a few wells now being operated in Whitley county, all these holes have long since been abandoned. Many of these are still in good shape and may be operated with profit under existing prices. Knox and Whitley counties have again been leased over and some important new drilling is being started. Between the old producing wells near Williamsburg, Whitley county, and on a line with the stablished gas belt of Knox county, half a dozen deep tests are being started in the Indian Creek district, Cumberland county, which once furnished wells yielding as much as 200 barrels each, has also been gone over by lease-takers and new work will mark the opening of the spring season. This county is favorably located and a little further test work should restore production.

Edmonson county, a wildcat district near Cumberland, furnished one new strike, with a yield of ten barrels. A number of completions were drilled in this field two years ago, but producers were confronted with a marketing problem similar to that which has long handicapped operators in other scattered districts of Kentucky, and the development of the field moved slowly. This field has a number of good producing wells and is capable of developing a good daily yield when conditions justify the establishment of a market for production already developed. The old Barren county field, adjoining Edmonson, failed to witness any new completions. Much territory is still held in the old Boyd's Creek section, the scene of Kentucky's first oil strikes, and further development will mark the 1916 season. An interesting feature in connection with this old field is the ruins of an old refinery, in operation forty years ago. Recently some wells drilled at that time were connected up and showed a profitable yield, after many years' idleness. Hart and Warren counties, tested four years ago and showing extensions of the Barren county sands, are also in line for new work this year.

The 1915 yield from the counties of Wayne, Wolfe, Lawrence, Morgan, Bath, Rowan and Whitley, Kentucky, the only fields figuring in pipe line reports for the year, will show an aggregate production around 459,000 barrels, a falling off of nearly fifty thousand barrels from the record of the preceding year. New developments in Scott, Estill and other counties will greatly increase the showing during 1916, these fields obtaining a market too late in the year to affect figures on production. Among Kentucky districts Wayne county made the principal showing in production, to this field being credited nearly half the total yield. The production of deep sand oil showed a considerable falling off, due to the lack of a profitable price. Many of the deep sand wells in Lawrence, Wolfe and Morgan counties were idle during the greater part of the year, because pumping expenses were not justified by the prices paid. Production of the inferior grade petroleum, produced in the Bath and Rowan district, did not show any considerable decline, although no new completions were made during the year. The smallest yield credited to any district was that of Whitley county, the runs from this field being less than one thousand barrels for the year.

Estill county, a shallow-sand district adjoining the deep-sand field of Wolfe county, is one of the most notworthy examples of an old district "coming back" as a result of high prices. This field was an established producing center of Kentucky ten years ago, furnishing a fair quantity of petroleum from a shallow pool of restricted scope, the wells being of an average depth of 200 feet. Developments were centered about the town of Irvine, to which a branch pipe line was connected, furnishing an outlet to the main trunk line entering Eastern Kentucky. Developments were prosecuted vigorously for two years, but the shallow sand declined in output and finally reached such a low point that the pipe line was taken up and the industry neglected, with no drilling for six years. Early in the present year some scattered test wells were drilled apart from the proven area and a number of fair sized completions recorded. The old pool was also gone over in a search for new producing wells, with successful results. Old wells were cleaned out and put to work and testing of adjoining leases continued until one of the best strikes in the State was made in the Cow Lick neighborhood late in the year. This well started out with a yield of 200 barrels daily. The location, six miles from the old pool, indicated a promising extension, and later results bore out the opinion of operators that the real pool of Estill county had been found.

The big strike attracted attention of operators all over the country, and toward the close of the year this was one of the most active districts of the State. The Cumberland Pipe Line Company, which takes the product of the Kentucky-Tennessee fields, restored the pipe line and a regular market has been a feature of the past month.

Three big wells were drilled in the Cow Lick district of Estill county during the closing month of the year, producing 200, 150 and 125 barrels, respectively. Twenty smaller wells completed yielded from ten to fifty barrels. One of the remarkable features of the new pool is the absence of failures, not a single dry hole being drilled within the producing limits of the established pool, several miles in extent. As at present constituted, the proven field extends from the vicinity of Irvine to Cow Lick, a distance of several miles, with a few wildcat wells drilled apart from the defined line. The field at the close of the year contained sixty-five producing wells, some of which were drilled ten years ago and only recently cleaned out and put to producing.

This new district, in addition to Kentucky's petroleum fields as a result of the past year's developments, is distinct from any other producing district of Eastern Kentucky, the sand being the shallowest yet developed. Wells range in depth from 200 to 700 feet, depending on the elevation of the land, but the same sand is encountered in all the wells. The quality of petroleum is excellent, differing but slightly from the yield obtained from the deeper formations in other fields. The wells differ from the ordinary shallow sand producers in that they are long-lived, many of the producers now in operation having been pumped continuously for several years. The purchasing companies have classified Estill county petroleum commercially with Somerset, the better grade product. Tank cars take over some of the output, and deducting this expensive method of transportation, the operators are netting $1.20 per barrel. The new year is one of bright promise for Estill county, as leasetaking has extended generally over the field and a large amount of test drilling is in prospect. Wells cost only a few hundred dollars to drill and are completed within a week, on an average. Some deep search drilling will also be undertaken, to determine the possibility of a paying sand below the present producing formation.

Foremost among the new producing areas added to the fields along the Kentucky-Tennessee border is Allen county. This district is east of the extensive Wayne county fields and on a line between that section and the old developments of Barren county. A defined pool of considerable extent has been proven in the neighborhood of Rodemer. Twenty producing wells have been drilled within a defined area two miles in extent, some of the strikes being gushers, with a large flow of gas. Two completions started out at 300 barrels daily, a number were in the 100-barrel class, and few made less than 20 barrels on an initial daily test. The producing sand is found between 200 and 300 feet and is believed to be an extension of the Barren county field, fifteen miles distant. A number of wells in the latter district, the first development in Kentucky, were drilled forty years ago and are still producing a small quantity of petroleum. Apart from the Rodemer pool a few tests were drilled late in the year. One, completed during December, showed a daily yield of 40 barrels and indicated an extension of several miles.

The Allen county fields are remote from the pipe line extensions and lack of a profitable market has handicapped operations during the past year, the wells being operated only a part of the time. Some of the production is marketed in tank cars and is taken for fuel purposes, although in quality the product is claimed to equal the petroleum of lighter gravity found in other districts of the State. At present plans are being worked out for the establishment of a refinery at Scottsburg or Petroleum, closely adjoining the established area, and if this should materialize, Allen county's production will be greatly increased, as the field is capable of great expansion. Lately there has been a revival in drilling, with a dozen or more rigs in commission.

A number of scattered tests were drilled over Kentucky during 1915 in widely scattered districts from the West Virginia border to the far western end on the Mississippi River, but no proven field was established. Possibly the most interesting results from this campaign were obtained in a series of tests bordering Reelfoot Lake, near the Kentucky-Tennessee border. One well near Hickman reached a pay sand at 1,000 feet, the yield showing up for 20 barrels daily. Two or three other tests showed petroleum in paying quantities, and toward the end of the year this territory was taking on the appearance of a defined field. A dozen or more companies have leased over half a dozen counties in that direction and plan more widespread developments during the next year. Leasing has extended across the border into Tennessee, late reports telling of plans for a number of deep tests in that State. The grade of petroleum found does not differ materially from the deep-sand production of Eastern Kentucky fields, over two hundred miles to the east.

There was an almost entire absence of the usual testing in Eastern Kentucky counties bordering West Virginia during the year, outside the established field of Lawrence county little being accomplished in lining up new territory. Advances came too late in the year to inspire this class of wild-catting in the mountainous region of the Big Sandy River valley, long regarded as a promising field for search work because of proximity to the West Virginia fields. Half a dozen counties in the valley have been drilled over in spots during recent years and the berea grit showing paying petroleum in several instances, but no pool has been found outside the districts of Busseyville and Fallsburg, Lawrence county. The old Floyd-Knott field, one time an important factor in production, witnessed no new drilling. This pool, drilled over twelve years ago, is in the southern tier of counties of Eastern Kentucky, south of Lawrence county. High prices will probably bring a revival of the search for deep oil in most of the Big Sandy counties during 1916.

A decline was shown in wild-cat developments in that portion of Western Kentucky extending southward from the Ohio River to the Tennessee line, excepting a few tests drilled in the northern and southern ends of a tier of counties through that district, no results worth while being accomplished. In the northern area some progress was made in Ohio, Webster, McLean, Hancock and Daviss counties, bordering the Ohio River. A southern extension of the Illinois and Ohio into that portion of Kentucky was definitely established, but repeated punctures have failed to define a pool of much consequence. Two years ago test drilling in Webster county resulted in two strikes of small capacity, but a number of failures were registered

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in follow-up drilling. A number of tests in Hancock county also revealed petroleum in small quantities. In this county a number of completions were reported during 1915, some of which showed a fair yield, but in the absence of pumping tests the possibilities of this county are still unknown. The low price of petroleum prevailing the greater part of the year prevented a more thorough test of this section of Kentucky, which is remote from the established fields reached by pipe lines. On the Indiana side late operations have approached the Kentucky border and lease-taking on this side has been more active as a consequence, but most of the leaseholders are marking time and drilling only in a few instances where leases have to be protested. The territory extending from these counties southward through the State and into Tennessee has been leased over in spots, but no testing was done during the year. Toward the close of the year lease-owners who were still paying rentals were making arrangements for activity entering into the development of this portion of the State, which is rich in indications of petroleum.

Not a single completion was made in the old Ragland field of Eastern Kentucky, centered in Bath and Rowan counties. This district furnishes petroleum of heavy gravity, which commands a lower price than the light gravity grades. This territory witnessed its greatest development several years ago, at which time it was one of the most active centers of drilling. The limits of production have been defined and outside a pool of small extent repeated punctures have failed to show an extension. One of the remarkable features of the district, however, is the long life of the sand, which is found at a depth of four hundred feet. Many of the wells now in operation have furnished an undiminished yield continuously for ten years. The market price of the Ragland product has fluctuated between 70 and 75 cents during the year, the latter quotation now prevailing. A market advance, however, failed to bring about additional drilling.

The search for deep oil has resulted in tests in many of the mountain counties of Eastern Kentucky in past years, but little was accomplished along this line during 1915, outside the established fields of Wolfe, Morgan and Lawrence counties. Wells below 1,000 feet have been drilled in Menifee, Perry, Leslie, Clay and other counties without result, excepting several large gas wells in Clay county. Menifee county has an established gas belt and Fleming county also has a large number of gas wells, but drilling for petroleum has been without result. However, the high market prices now prevailing will doubtless cause a renewal of the search for deep petroleum, as the market now warrants the heavy expense of this class of drilling.

Tennessee's come-back as a petroleum-producing State was one of the most important achievements of the 1915 season. New developments in Scott county, just south of the Kentucky line, revealed a distinct pool of large extent, within which some of the best wells of the year were drilled. In this district two strikes of 300 barls' capacity each were drilled, while several wells ranging in output from 20 to 50 barrels were drilled within a radius of several miles around the original completions. Developments in Scott county were started during 1914, but did not assume much importance until the spring of last year, when Chicago operators, operating in the vicinity of Oneida, drilled in one of the big wells. This discovery was followed by a rush of operators, and strikes followed in rapid succession, not, however, without a number of failures. The results in new production, however, more than offset the failures and at the beginning of 1916 this territory is looked upon as one of the most promising of the new fields. The established area of Scott county, defined by about thirty wells drilled during the year, is about fifteen miles south of Wayne county, the leading petroleum field of Kentucky. While the sand is somewhat deeper in Scott county, it is regarded as an extension of the lower Wayne county formation, the grade of petroleum being the same. Wells are completed at an average depth of 1,000 feet, some being somewhat deeper. The new field is as yet without a market, as tank car transportation presents difficulties, because of the remoteness of Scott county. It is probable that a pipe line extension south from the Wayne county field will be one of the developments of the ensuing year, as Scott county's output is now believed to justify such an extension. New developments reached a more important stage late in the year, but the winter season brought a lull, due to the mountainous nature of the country, and a general revival is now looked for before spring.

The counties of Pickett, Fentriss and Overton, formerly producing areas of Tennessee, have been dead for several years. Upward trend of the market failed to bring a revival of the industry in 1915, but lease takers have been going over these counties and additional drilling is in prospect for this year. Fentriss county contained the first oil field of any importance in the Kentucky-Tennessee field, a pipe line formerly extending to the Bob's Bar district before any developments of consequence had occurred in Kentucky. This district went dead twelve years ago and the pipe line was removed. The success encountered in Scott county is causing renewed interest in these older fields, which were scarcely scratched during the former period of development. At the close of the year there were nine rigs in commission on the Tennessee side, eight of which were in Scott county and one in Fentriss county.

The market price of Kentucky-Tennessee petroleum varied during the year from 80 cents per barrel, the lowest price ever quoted, to $1.63 per barrel, the highest ever quoted. The latter figures were quoted at the close of 1915 and if the market continues firm the year 1916 will bring the greatest development in the history of Kentucky and Tennessee.

ILLINOIS.

The heavy drop in development work in the Illinois petroleum fields during 1915 was due to the low price of oil during the earlier part of the year, but rapid advances were made in prices of oil at the wells, and the additional work since August shows the effect the advance had on field work over the State. The year showed the least finished wells of any year since 1905, when the fields were first brought to light, but the new year should bring back the activity. Some of the older producing counties still have many locations yet undrilled and these will be looked after just as soon as better weather comes. There will be much wildcat work done the coming spring and summer, as new pools will be looked for. Only one pool of any significance was found during the year past and that was the Hamm pool, a short distance west of the Hoing pool of 1914, and in Lamoine township, McDonough county. Some fairly good wells were found in the new pool at a shallow depth, but no gushers like those fund in the Hoing pool. The trade figures that many more pools of the same kind will be found among the western half of the State. In Macoupin county a nice gas field has been discovered near the town of Staunton, in Dorchester township, but there being no market for the gas, it is a dead letter as far as making any money for the owners is concerned.

Work was done in twenty-one counties of Illinois during the year, but there is a scarcity of gushers when compared with other years, and the daily production is only a shadow of what it was when the field was in its prime. Since the advance in the price of oil a few good deals have been pulled off in the State, some of the prices being as high as $1,500 per barel, the highest price yet known for any previous deals in Illinois crude oil wells. J. C. Donnell purchased the lease on the Brisco tract, near Westfield, in Clark county, from Parker Bros., and there is now 43 producing wells on the property, which is in the shallow sand field. J. W. Solley and others of Parkersburg, W. Va., bought the Peter Finkler lease near Westfield, Ill., with a production of ten barrels a day for $15,000. The Central Refining Company, of Lawrenceville, bought of the Vandalia Gas Company and McClintock leases in the shallow territory southwest of Casey, in Cumberland county, with a production of about 100 barrels a day, at $130,000. These prices show that Illinois producing properties are in good demand, as such prices were never heard of before in the field.

From the time operations for oil and gas started in Illinois there has been a total of 23,854 wells drilled, of which 19,538 were oil-producing wells and 4,316 gas wells or dry holes. The greatest year in the history of the field was in 1907, when close to five thousand wells were drilled.

The wells finished during 1915 were by months as follows:—

Month.	Comp.	Prod.	Gas.	Dry.
January	47	975	2	14
February	35	640	1	11
March	53	1,478	1	11
April	54	1,254	1	10
May	53	953	1	19
June	54	1,219	2	16
July	64	1,356	1	17
August	71	1,367	1	18
September	66	1,236	1	16
October	79	1,263	4	19
November	84	1,051	1	25
December	96	1,263	2	21
Totals	756	14,055	18	197
For 1914	1,583	45,237	32	355
Difference	827	31,182	14	158

The above wells were finished by counties each month during the year as follows:—

CRAWFORD COUNTY.

Month.	Comp.	Prod.	Gas.	Dry.
January	16	78	2	3
February	9	57	1	1
March	18	155	..	5
April	10	66	1	1
May	12	55	..	6
June	16	115	..	5
July	22	243	..	9
August	14	190	1	1
September	12	115	..	2
October	26	256	2	3
November	30	252	..	12
December	30	184	1	7
Totals	215	1,766	8	55
For 1914	707	8,613	28	136
Difference	492	6,847	20	81

LAWRENCE COUNTY.

Month.	Comp.	Prod.	Gas.	Dry.
January	16	860	..	3
February	9	459	..	3
March	23	1,228	..	4
April	16	845	..	1
May	15	467	..	4
June	14	484	..	2
July	13	515	..	1
August	12	289	..	3
September	8	76	..	2
October	8	310	..	1
November	9	325	..	..
December	18	480	1	3
Totals	157	6,329	1	27
For 1914	365	24,263	2	69
Difference	208	17,934	1	42

CLARK COUNTY.

Month.	Comp.	Prod.	Gas.	Dry.
January	9	27	..	3
February	5	13	..	1
March	4	29	1	1
April	11	123	..	1
May	12	220	..	3
June	12	485	..	6
July	16	103	..	3
August	16	138	..	2
September	13	188	..	4
October	16	287	..	3
November	15	175	..	5
December	12	135	..	1
Totals	141	1,914	1	33
For 1914	222	1,581	2	62
Difference	81	333	1	29

McDONOUGH COUNTY.

Month.	Comp.	Prod.	Gas.	Dry.
January	4	..	..	4
March	4	40	..	..
April	8	90	2	..
May	7	70	3	..
June	3	15	2	..
July	5	300	2	..
August	14	540	5	..
September	26	702	5	..
October	17	295	6	..
November	23	254	4	..
December	19	246	2	..
Totals	130	2,592	32	4
For 1914	175	3,944	35	23
Difference	45	1,352	3	19

CUMBERLAND COUNTY.

Month.	Comp.	Prod.	Gas.	Dry.
January	2	10	..	1
February	3	80	..	..
March	2	10	..	..
April	3	115	..	..
May	3	85	1	1
June	6	120	..	..
July	3	55	..	..
August	8	110	..	1
September	4	75	..	..
October	5	95	1	1
November	7	45	..	..
December	5	55	..	..
Totals	44	810	2	4
For 1914	25	141	..	2
Difference	19	669	2	2

SCHUYLER COUNTY.

Month.	Comp.	Prod.	Dry.
February	2	..	2
April	2	..	2
May	1	..	1
July	1	..	1
September	1	..	1
November	3	..	1
December	7	..	7
Totals	17	..	17
For 1914	5	..	5
Difference	12	..	12

MACOUPIN COUNTY.

Month.	Comp.	Prod.	Gas.	Dry.
June	2	..	2	..
July	1	..	1	..
August	3	..	..	3
September	1	..	1	..
October	1	..	1	..
November	2	5	1	..
Totals	10	5	6	3
For 1914	5	15	..	2
Difference	5	10	6	1

MARION COUNTY.

Month.	Comp.	Prod.	Dry.
March	1	25	..
May	1	50	..
July	1	40	..
September	1	80	..
November	1	40	..
December	1	35	..
Totals	6	270	..
For 1914	7	70	1
Difference	1	200	1

WABASH COUNTY.

Month.	Comp.	Prod.	Dry.
July	1	100	..
August	2	100	1
December	3	128	..
Totals	6	328	1
For 1914	12	345	5
Difference	6	17	4

HANCOCK COUNTY.

Month.	Comp.	Prod.	Dry.
April	1	..	1
May	1	..	1
June	1	..	1
July	1	..	1
September	2	..	2
October	2	..	2
November	1	..	1
Totals	9	..	9
For 1914	20	45	19
Difference	11	45	10

EDGAR COUNTY.

Month.	Comp.	Prod.	Dry.
January	1	..	1
May	3	6	..
Totals	4	6	1

COLES COUNTY.

Month.	Comp.	Prod	Dry.
January	1	..	1
April	1	15	..
October	1	20	..
Totals	3	35	1
For 1914	21	172	5
Difference	18	137	4

MONTGOMERY COUNTY.

Month.	Comp.	Prod.	Dry.
February	1	..	1
August	1	..	1
October	1	..	1
Totals	3	..	3
For 1914	2	..	2
Difference	1	..	1

CLINTON COUNTY.

Month.	Comp.	Prod.	Dry.
January	1	..	1
March	1	..	1
Totals	2	..	2
For 1914	4	20	2
Difference	2	20	..

Other Counties.

In Adams county, one dry hole was found in February and another in April. In St. Clair county, two dry holes were drilled in October. A dry hole was drilled in Jackson county in January. Washington county is credited with a dry hole in February. Edwards county had a dry hole in April. Madison county had a dry hole in August, and Randolph county one in December.

Abandoned Wells.

The abandoned wells in the Illinois field for 1915 were by counties as follows:—

Crawford county	87
Lawrence county	63
Clark county	3
Wabash county	2
Totals	155

Gushers for 1915.

Only forty-eight wells from 100 barrels up, which are considered in the gusher class, were finished in the Illinois field during 1915. In July the Miller Oil Company drilled a 29,000,000 cubic foot gas well, in Macoupin county, and again in October drilled one in the same county good for 5,000,000 cubic feet. The gushers were by counties as follows:—

LAWRENCE COUNTY.

January.

Ohio Oil Company, 200 and 100 barrels.
Snowden Bros., 180 and 100 barrels.
Griggs & Co., 300 barrels.

February.

Snowden Bros., 125 barrels.
Maple Oil Company, 175 barrels.
Ohio Oil Company, 110 barrels.

March.

Callahan & Thompson, 100 barrels.
Boggs & Tanguary, 100 barrels.
Ohio Oil Company, 100 and 160 barrels.
Central Refining Company, 100 barrels.
Snowden Bros., 100, 200 and 125 barrels.

April.

Maple Oil Company, 100 barrels.
Griggs & Co., 270 barrels.

May.

Octo Oil Company, 125 barrels.
Ohio Oil Company, 125 barrels.
Snowden Bros., 200 and 100 barrels.

June.

Maple Oil Company, 120 barrels.
Griggs & Co., 150 barrels.

July.

Big Four Oil and Gas Company, 100 barrels.

August.

Central Refining Company, 100 barrels.

October.

Ohio Oil Company, 100 barrels.

December.

Big Four Oil and Gas Company, 100 barrels.

CLARK COUNTY.

May.

Parker Bros., 125 barrels.

June.

J. I. Campbell & Co., 438 barrels.

September.

Wilson, Soules & Co., 125 barrels.

October.

Ohio Oil Company, 200 barrels.

November.

Wilson, Soules & Co., 180 barrels.

CUMBERLAND COUNTY.

May.

Vandalia Gas Company, 200 barrels.

June.

D. D. Nolan, 100 barrels.

CRAWFORD COUNTY.

July.

Ohio Oil Company, 125 barrels.

WABASH COUNTY.

July.

Sian Oil and Gas Company, 100 barrels.

August.

Sian Oil and Gas Company, 100 barrels.

December.

Sian Oil and Gas Company, 135 barrels.

McDONOUGH COUNTY.

July.

Snowden Bros., 150 and 150 barrels.
Ohio Oil Company, 150 barrels.

August.

Snowden Bros., 125, 125, 150 and 100 barrels.
Ohio Oil Company, 100 barrels.

September.

Ohio Oil Company, 150 barrels.
Snowden Bros., 175 barrels.

EASTERN PIPE LINE STATISTICS.

The statistical end of the oil industry, in the way of the amount of crude oil run from the wells and the deliveries presents many interesting comparisons. In the high grade fields east of the Mississippi River during the year of 1915 there were 37,477,588.75 barrels run from the wells and the deliveries of oil for the same period amounted to 41,791,778.73 barrels, close to fourteen million more barrels than were produced. This would indicate the cause of the rapid advance in gasoline prices, as more oil is needed to supply the gasoline for market than is produced.

The runs listed from the Pennsylvania fields are oil produced from Southern New York, Pennsylvania and West Virginia. The Southeastern Ohio fields consist of the production of Southeastern and Central Ohio, and the production from the wells of Northwestern Ohio, Indiana, Illinois, Kentucky, Cleveland, O., and Franklin, Pa., go to make up the figures of the runs and shipments for the year.

The runs and deliveries of oil by months from the high grade fields during 1915 were as follows:—

Month.	Runs, barrels.	Deliveries, barrels.
January	3,203,779.50	3,105,081.06
February	3,074,614.76	2,699,704.10
March	3,429,987.01	3,078,491.58
April	3,286,627.42	3,211,838.91
May	3,147,860.24	3,406,351.44
June	3,205,517.85	3,387,444.13
July	3,182,709.69	3,678,750.74
August	3,085,000.31	4,407,312.36
September	3,011,108.42	3,874,298.54
October	2,989,677.55	3,627,060.79
November	2,859,628.84	3,619,356.87
December	3,001,071.16	3,701,388.21
Totals	37,477,582.75	41,791,778.73
1914	42,631,884.08	56,041,894.44

The above runs and deliveries for the year were distributed by the different fields as follows:—

Field.	Runs, barrels.	Deliveries, barrels.
Pennsylvania	16,272,086.00	22,283,029.09
Franklin, Pa., heavy	42,339.59	65,507.08
S. E. Ohio	3,265,334.05	2,453.72
N. W. Ohio	2,281,809.24	5,628,345.52
Cleveland, Ohio	1,829.48	1,475.86
Indiana	363,706.22	11,375,638.96
Illinois	14,843,543.53	2,417,969.01
Kentucky	406,933.64	17,419.49
Totals	37,477,582.75	41,791,778.73

The stocks of oil held by the pipe lines at the close of 1915 in the various fields were as follows.—

Field.	Stocks, barrels.
Pennsylvania	6,739,492.74
Franklin, Pa., heavy	41,092.36
S. E. Ohio	614,501.37
N. W. Ohio	2,231,889.17
Cleveland, Ohio	209.31
Indiana	1,015,814.06
Illinois	5,214,644.49
Kentucky	169,258.86
Total	16,026,902.36

PENNSYLVANIA FIELDS.

The runs and deliveries of Pennsylvania oils of Southern New York, Pennsylvania and West Virginia each month during 1915 were as follows:—

Month.	Runs, barrels.	Deliveries, barrels.
January	1,356,078.10	1,747,554.10
February	1,313,629.67	1,545,620.51
March	1,463,060.16	1,677,452.39
April	1,434,195.55	1,766,683.55
June	1,403,836.78	1,848,342.13
July	1,395,566.67	1,953,201.68
August	1,348,035.20	2,305,423.39
September	1,321,466.02	2,029,405.38
May	1,347,155.06	1,793,834.93
October	1,284,443.37	1,792,346.31
November	1,253,160.05	1,963,085.25
December	1,351,519.37	1,860,079.47
Totals	16,272,086.00	22,283,029.09
1914	17,417,883.04	30,513,297.16

FRANKLIN FIELD.

The runs and deliveries of heavy oils

1816==1916

One Hundred Years of Service

Extracts Chemicals Colors

WITH the advent of 1916 we have rounded out one hundred years of business life—marked all along the line by prompt, efficient service and honest value products. May we continue to serve you?

During the past century our business has been conducted at seven different addresses:

1st	Desk room,	West Street between Barclay and Vesey			
2nd	Store and	Office,	27 Barclay Street,	1850	to 1858
3rd	"	"	83 Murray Street,	1858	to 1860
4th	"	"	120 William Street,	1860	to 1898
5th	"	"	3 Cedar Street,	1898	to 1903
6th	"	"	181 Front Street,	1903	to 1907
7th	"	"	46 Cliff Street,	1907	to date

The following is a brief resumé of the changes of firm names and when the changes occurred:

One hundred years ago Nathan Gifford began cutting Dyewoods in the then small town of Poughkeepsie on the Hudson. Hampered by lack of capital, he applied to one of Poughkeepsie's leading merchants for financial assistance, and Aaron Innis, coming to his relief, acquired a silent partnership in the business of Gifford.

At, or about 1840, Howland R. Sherman wedded the eldest daughter of Aaron Innis, and was made the active representative of his father-in-law's interest in the Dyewood business of Gifford. The firm style then being changed to Gifford & Sherman. Nine years after Sherman's advent into the business, Gifford's interest was purchased.

About 1844, Aaron Innis having died, his eldest son George abandoned a college career and took a position as salesman in the Dyewood business of which his father's estate held the controlling interest, and soon thereafter the firm name was changed to Gifford, Sherman & Innis.

In 1858, Howland Sherman died, and George Innis, acquiring the remaining interests, became sole owner and remained such for a period of twenty-six years, retaining the style of Gifford, Sherman & Innis.

In 1885, the business was acquired by Hasbrouck Innis, only son of George, and his cousin, William R. Innis, only son of Aaron Innis second. The name style was changed from Gifford, Sherman & Innis to Innis & Company, under which style it continued until 1904, when the firm was dissolved; the name and good will being purchased by Geo. V. Sheffield, who continued the business under name of Innis & Company until January, 1906, when, in conjunction with the Messrs. C. C. and M. Speiden, a new partnership was formed which in turn was changed into an Incorporated Company on March 3, 1906.

Innis, Speiden & Co., Inc.

Successors to Innis & Co.

46 Cliff Street NEW YORK

BOSTON
220 Congress Street

CHICAGO
120 W. Kenzie Street

PHILADELPHIA
147 So. Front Street

from the wells of the Franklin, Pa., field each month for 1915 were as follows:—

Month.	Runs, barrels.	Deliveries, barrels.
January	3,485.01	9,475.49
February	3,937.16	.....
March	3,352.08	432.38
April	3,594.90	.....
May	2,812.95	.....
June	3,196.13	3.55
July	3,241.13	1,677.43
August	1,941.21	493.14
September	2,175.43	660.60
October	4,901.40	23,597.96
November	3,061.83	22,806.72
December	6,639.35	6,359.81
Totals	42,339.59	65,507.08

SOUTHEASTERN OHIO FIELD.

The runs and deliveries of the wells of the Southeastern Ohio field each month for 1915 were as follows:—

Month.	Runs, barrels.	Deliveries, barrels.
January	278,611.37	.....
February	263,133.92	.....
March	290,294.55	.....
April	281,412.60	.....
May	266,877.89	989.64
June	279,891.31	1,464.08
July	268,175.17	.....
August	266,566.05	.....
September	263,270.42	.....
October	270,253.61	.....
November	254,462.56	.....
December	282,384.60	.....
Totals	3,265,334.05	2,453.72
1914	3,434,261.09	1,933.37

NORTHWESTERN OHIO FIELD.

The runs and deliveries of oil each month during 1915 from the Northwestern Ohio fields were as follows:—

Month.	Runs, barrels.	Deliveries, barrels.
January	184,909.51	343,256.67
February	186,343.63	281,153.01
March	208,453.97	351,051.56
April	211,246.07	334,119.35
May	191,153.51	279,129.55
June	198,569.28	259,276.64
July	197,086.18	538,390.20
August	184,803.71	897,355.60
September	183,651.19	627,120.59
October	185,616.29	655,169.45
November	175,883.23	511,848.44
December	174,112.67	612,674.37
Totals	2,281,809.24	5,628,345.52
1914	2,567,268.10	4,202,182.13

CLEVELAND, OHIO, FIELD.

The first runs of oil from the wells of Cleveland were made in October, and since then the runs and shipments for months during the close of 1915 were as follows:—

Month.	Runs, barrels.	Deliveries, barrels.
October	989.14	645.36
November	363.84	246.67
December	476.50	583.83
Totals	1,829.48	1,475.86

INDIANA FIELDS.

The runs and deliveries of oil from the Indiana fields each month during 1915 were as follows:—

Month.	Runs, barrels.	Deliveries, barrels.
January	30,312.45	885,206.62
February	36,222.42	709,060.43
March	29,363.18	741,814.60
April	35,966.88	932,099.66
May	31,453.65	1,067,096.73
June	34,301.56	1,037,136.12
July	29,961.94	970,642.58
August	29,177.96	945,981.47
September	27,687.92	1,001,532.98
October	29,578.55	1,032,384.07
November	22,984.75	1,014,643.46
December	26,666.96	1,058,040.24
Totals	363,708.22	11,375,638.96
1914	493,640.16	10,800,471.79

ILLINOIS FIELD.

The runs and deliveries of oil from the Illinois wells each month for 1915 were as follows:—

Month.	Runs, barrels.	Deliveries, barrels.
January	1,315,484.98	139,310.21
February	1,237,092.99	163,852.39
March	1,397,319.29	302,719.92
April	1,281,266.57	178,052.64
May	1,271,156.69	324,068.59
June	1,250,264.30	240,743.48
July	1,256,104.88	214,033.30
August	1,221,971.99	257,575.23
September	1,181,925.99	214,873.32
October	1,184,508.09	124,486.22
November	1,117,786.16	96,856.30
December	1,128,570.60	161,317.51
Totals	14,843,542.53	2,417,909.01
1914	18,239,245.46	10,480,011.06

KENTUCKY FIELD.

The runs each month from the Kentucky petroleum fields during 1915 were as follows, including the deliveries:—

Month.	Runs, barrels.	Deliveries, barrels.
January	34,898.07	277.97
February	34,254.97	17.76
March	38,203.78	20.73
April	38,944.85	583.81
May	37,270.49	1,210.00
June	35,458.49	478.13
July	32,543.72	805.55
August	32,504.19	483.44
September	30,930.45	705.67
October	29,297.10	431.42
November	31,926.42	10,070.03
December	30,701.11	2,332.98
Totals	406,933.64	17,419.49
1914	479,610.23	43,998.63

THE MID-CONTINENT FIELD.

The review of mid-continent oil development in 1915 is almost bewildering. It was a year of extreme superlatives. At the very moment it was believed production and field activity had reached their height, at that very moment the field took a spurt and far exceeded all previous records in the number of wells drilled. For the first time Oklahoma and the mid-continent field took first rank in the amount of oil produced in a given year. That honor has heretofore for a number of years been held by California. The entire production of the mid-continent field for 1915 is estimated at 121,998,915 barrels. There were held in storage at the close of the year 94,519,631 barrels, a gain over the previous year in reserved stocks of 18,390,600 barrels. There was a gain in stored stocks in the Cushing field of 23,935,890 barrels. The year began with a potential production of about 385,000 barrels. In December, 1914, the Prairie Oil and Gas Company had drilled deeper a well at Cushing into a lower sand at about 2,500 feet and discovered what became known as the Bartlesville formation. Then followed a spectacular rise in production until the output of Cushing alone amounted to about 300,000 barrels a day the latter part of April and the first of May. There also followed a tremendous overproduction in refined products. Prices went to smash. Crude was selling as low as 26 cents a barrel. The common carrier law had made a keen competition in crude. Fifteen new refineries were built in the field. Gasoline, kerosene and fuel oil became a drug on the market, with kerosene selling for 1 cent a gallon, gasoline as low as 5 cents a gallon, and fuel oil as low as 23 cents a barrel. Chaos reigned.

Then suddenly the bottom dropped out of Cushing. By July stocks were being drawn upon. Instead of the producer crying for somebody to take his oil, instead of rushing to the corporation commission for assistance, they began holding their oil and storing it. August 1 the market jumped from 40 to 50 cents a barrel. Sales below the market immediately stopped. In less than a month the market had almost doubled. Refined prices began to soar. At the end of the year the market was $1.20 for crude, with premiums ranging as high as 55 cents, and oil costing, laid down at Kansas refineries, as high as $2 a barrel. Healdton jumped from 30 to 60 cents a barrel, and $1 a barrel for Healdton stored oil was refused. Kerosene had jumped to 3½ cents a gallon, gasoline to 15 cents a gallon, and fuel oil to from 75 to 90 cents a barrel. An exceedingly wet summer, with rain eighteen to twenty days out of the thirty, preventing touring, was followed by an exceptionally pleasant fall with the highways strewn with touring cars. The result was a sudden and unprecedented demand for gasoline. The shortage resulted in almost a riot among jobbers for supplies and among refiners for crude product.

The following interesting table shows the development of the gasoline market, taking Kansas City as a basing point. It shows that the independent marketers for the first time in the history of the business in this field led the Standard Oil Company in making the market after the first of September:—

Tank Wagon Prices Prevailing in Kansas City.

Date.	Standard Oil Co. Kerosene, cents.	Standard Oil Co. Gasoline, cents.	Independents. Gasoline, cents.
1914.			
Feb. 6	6.5	14.0	....
Feb. 9	6.5	13.5	....
Apl. 1	6.5	13.0	....
Apl. 16	6.5	12.5	....
Apl. 27	6.0	12.5	....
May 11	6.0	12.0	....
June 17	5.3	10.8	....
July 27	5.3	10.3	....
Sep. 29	5.3	10.3	....
Dec. 22	4.8	10.3	....
1915.			
Feb. 22	4.8	9.8	....
Apl. 12	4.3	9.8	....
June 10	4.3	8.8	....
Aug. 30	4.8	8.8	....
Sep. 1	4.8	8.8	9.8
Sep. 15	4.8	9.8	9.8
Sep. 23	4.8	9.8	10.8
Sep. 29	5.3	10.8	10.8
Oct. 21	5.3	10.8	11.8
Oct. 25	5.8	11.8	11.8
Nov. 2	5.8	11.8	12.8
Nov. 15	5.8	12.8	12.8
Nov. 17	5.8	12.8	13.8
Nov. 23	6.3	13.8	13.8
Nov. 30	6.3	14.8	14.8
Dec. 13	6.3	14.8	14.8
Dec. 21	6.3	14.8	15.8
Dec. 30	6.3	15.8	15.8

The strenuous demand for gasoline at the close of the year resulted in much comment among consumers of the ability of the refiner to reduce more gasoline from crude than he is doing if he were enterprising. It was even charged that the Western refineries were junk-heaps and plants were not being replaced by newer processes. This was the unkindest cut of all. The fact is that the great majority of refineries in the mid-continent field have been built within the last five years. They represent an investment of $23,000,000. The only successful cracking process for precipitating larger percentages of gasoline from crude is owned by the Standard Oil Company. There is much interest at the present time in other processes and mid-continent refiners are active in this direction. The following table will show the number of refiners putting in new cracking processes, and will give a suggestion of what may be expected the coming year. In fact, it may be said the refining business is just in its infancy and that greater development may be expected in this branch of the business in the next year or two than in any other division of the oil industry. It is especially noteworthy that the Indiahoma Refining Company at East St. Louis and the Producers' Refining Company at Gainesville, Tex., have contracted with the Bureau of Mines, Washington, for the use of the Rittman process and will put in Rittman plants in the very near future:—

REFINERS PUTTING IN NEW REFINING PROCESSES.

Cosden & Co., Tulsa, Okla.:—Cosden process.
North American Refining Company, Pemeta, Okla.:—Parker process.
Consolidated Oil Refining Company, Cleveland, Okla.:—Greenstreet process.
Great Western Oil Refining Company, Erie, Kan.:—Kelsey process.
Rosedale Refining Company, Rosedale, Kan.:—Wells process (contracted).
Consolidated Oil Refining Company, East St. Louis:—Seeger-Washburn process.
Indiahoma Refining Company, East St. Louis:— Rittman process (contracted).
Producers' Refining Company, Gainesville, Tex.:—Rittman process (contracted).
Millliken Refining Company, Vinita, Okla.:—Spent $35,000 on Snelling patent without success.

Several other refiners are working on secret processes or are about to install new processes.

In contemplation of the changed condition at Cushing, the appended table is of special interest. In studying the shortage of gasoline and the advancing price of gasoline, it is important to note that last summer Cushing was producing 300,000 barrels a day, that from this crude from 24 to 30 per cent. of gasoline was extracted, whereas the great bulk of crude outside of Cushing produces from 5 to 15 per cent. So that, whereas more than 300,000 barrels a day of this high-grade crude was thrown upon the market last summer, only about 90,000 barrels of the 280,000 of present daily production is of this high grade. This in itself represents a tremendous shortage in gasoline.

The following table shows the approximate percentages of gasoline and kerosene obtainable in different districts in the mid-continent field. These percentages vary according to the parts of the field from which the oil is taken and the method of and carefulness in refining:—

GASOLINE AND KEROSENE PERCENTAGE FROM MID-CONTINENT CRUDE.

District produced.	Kerosene, per cent.	Gasoline, per cent.
Kansas—		
Northern districts	28	8 to 13
Montgomery county	25	12
Chautauqua county	24	15
Augusta	20	15.5
Eldorado	24	21.5
Cherryvale	20	12
Paola and Rantoul	21	13
Oklahoma—		
Dewey, deep	29	5.5
Dewey, shallow	28	12
Bartlesville	23	10
Osage	25	20
Ponca	25	22
Cleveland	28	14
Cushing	25	22 to 27
Fox pool	25	30
Cole pool	..	13
Healdton	26	9 to 11
Nowata	23	15 to 16

(These percentages vary with different grades of crude from the same district, and also at what gravity the refiner "cuts" his gasoline; also according to the manner of handling the crude in distillation. Less gasoline is possible, generally, as wells in light oil districts grow older.)

In this connection it is also pertinent to observe the gravity of crude in the various districts of the mid-continent field as shown in the following table:—

GRAVITY MID-CONTINENT CRUDE.

District.	Gravity.
Paola, Kan.	31.4
Rantoul, Kan.	30.9
Allen county, Kansas	22 to 28
Neosho county, Kansas	28 to 30
Montgomery county, Kansas	28 to 32
Chautauqua county, Kansas	32 to 34
Cherryvale, Kan.	30.6
Augusta, Kan.	32
Eldorado, Kan.	38
Blackwell, Okla.	37 to 39
Newkirk, Okla.	37 to 39
Ponca City, Okla.	37 to 40
Gleen pool, Oklahoma	36 to 38
Henryetta, Okla.	28 to 37
Bald Hill, Okla.	35 to 37
Muskogee, Okla.	34 to 39
Bird Creek, Okla.	26 to 35
Healdton, Okla.	28 to 32
Cushing, Okla.	37 to 40
Fox pool, Okla.	45
Nowata, Okla.	30 to 34

(It is observed that the gravity of all extra high gravity crude in Oklahoma deteriorates in gravity as the wells get old.)

During 1915, 5,848 wells were drilled in the mid-continent field, of which 4,114 were oil producers, 731 were gas and 1,003 were failures. A total of 69,913 wells have been drilled in the entire mid-continent field to date. This was the smallest number of wells drilled in any one year since 1911. The indications are now that many more wells will be drilled in 1916 than in 1915. In fact, it is expected the record for well drilling will go to 1916. There is a back-to-Kansas movement with strong probabilities of record-breaking in field operations and the creation of an immense production.

Nineteen fifteen was characterized for its activity in pipe line construction by independents, the large number of new refineries and the building of iron storage tanks, of which there were 2,669 at the close of the year.

During 1915, 731 gas wells were drilled in the mid-continent field, with a yield of 2,143,973,000 cubic feet of gas, against 839 wells drilled in 1914 and a yield of 3,525,403,000 cubic feet of gas. The bulk of the Oklahoma legislatures in the beginning homa, as will be seen by reference to the detailed tables hereinafter presented.

During the sessions of the Kansas and Oklahoma Legislatures in the beginning of the year bills were presented providing for reduction of the inspection fee of refined products. In Kansas a bill was passed by the Legislature for inspection of six cents a barrel on gasoline only. In Oklahoma a bill was passed providing for an inspection of four cents on each gasoline and kerosene. The governor of Kansas vetoed the bill in that State, while the bill in Oklahoma became operative; but at the close of the year the oil inspector of Oklahoma was attempting to enforce inspection of all gasoline, whether offered for sale in Oklahoma or interstate shipments, and the matter has been submitted to the attorney-general. The constitutionality of the Kansas law will probably be settled by a decision of the Kansas Supreme Court in February. Consumption of gasoline has almost doubled in both States the past year.

Mid-Continent Output, 1915.

Company.	Barrels.
Prairie Company	31,261,566
Gulf Pipe Line Company	9,877,000
The Texas Company	8,846,519
Magnolia Petroleum Company	3,187,940
Independent refiners	31,390,000
Tank car shipments	10,000,000
Stored at Healdton, 1915	2,000,000
Independents stored	1,500,000
Stored at Cushing	23,935,890
Total	121,998,915

STOCKS JANUARY 1, 1916.

Company.	Barrels.
Prairie Oil and Gas Company	43,445,484
Gulf Pipe Line Company	7,800,000
The Texas Company	8,202,335
Magnolia Petroleum Company	1,021,547
Healdton	2,000,000
Independents at Cushing	8,143,420
Carter Oil Company	17,710,200
Standard of Indiana	4,262,000
Okla Oil Company	1,093,245
Independents outside Cushing	850,000
Total	94,519,631
Stocks January 1, 1915	76,129,031
Gain	18,390,600

With fewer wells drilled, the production of the mid-continent field in 1915 exceeded the output of any former year by approximately 20,000,000 barrels. This performance was the result of the remarkable development of the deep Bartlesville sand in the Cushing pool. Cushing had had two previous "excitements," one in the development of the Layton sand and another when the deeper Wheeler formation was drilled and it was supposed the gusher period of the pool was over when the deeper Bartlesville pay proved the richest stratum discovered in this region. Later some genuine gushers were drilled in a sand still deeper than the Bartlesville and known by different names, but generally conceded to be the so-called Tucker.

A remarkable feature of the year—the fact that it came in upon a receding production, turned to the greatest flood the oil country had ever known, turned again to a shortage and is now increasing again—as fickle and uncertain as the weather.

The total production for 1915 was 121,936,915 barrels. Of this amount, 4,115,800 barrels was produced in Kansas and 117,883,115 barrels in Oklahoma, and the great bulk of it was in the Cushing pool. Practically speaking, Cushing was the mid-continent field in 1915. This is shown pretty conclusively by the fact that the stocks alone at Cushing last year increased 23,935,890 barrels, or more than the entire production of the field in any one year up to 1907. The production of Cushing in 1915 was more than the production of the entire field in any year previous to 1914. This gives a suggestion of the wonderful performance when it is taken into consideration the big flood lasted only a few weeks, the tide having been reached in April and May and a shortage was manifest in July, with an advancing market in August, and the price of crude virtually increased 900 per cent. by the close of the year, when it is figured that crude could be had at the flush period as low as 26 cents a barrel and at the close of the year refiners were compelled to pay 40 to 50 cents a barrel premium. It was a year without parallel, and the writer has indulged in superlatives so many times the past twelve years in his annual reports of this field and so often felt that the final high record had been reached, only to have the succeeding year eclipse everything before it, that he does not feel warranted in making any further predictions. It is a pretty safe bet, however, that the last gusher pool in the mid-continent field has not been developed. No one can tell what will result from further drilling at Augusta, Kan. Geologists state the formation is favorable to something even bigger than Cushing. May be so; 3,000-barrel wells for a starter cast their own illuminations; the sand is deep and apparently the same formation as Cushing.

The total production of the mid-continent field to date has been 639,502,391 barrels, of which amount Kansas is credited with 36,299,460 barrels and Oklahoma with 605,202,931 barrels. It is believed Kansas will produce far more oil in the coming twelve years than during the last twelve. It is also believed more production will come from the west side of the Flint Hills, where Augusta is located, and which for years was not attractive to oil men, but to which attention has been called in these columns repeatedly the past five years, that has ever come from the old part of the Kansas field. Already the potential production of the Eldorado-Augusta pool is 7,000 barrels a day and operations are not near well under way. Of the 639,502,391 barrels prduced up to date, the Prairie Oil and Gas Company has purchased 345,879,325 barrels, or more than half, showing its importance to the field. But the past year has changed conditions materially. The independent refiners are the largest consuming branch of the industry now; then there is the Carter Oil Company with large producing properties and over 17,000,000 barrels in storage, and a rumor that it will enter the refining field the coming year. There is a report that there is real competition between factions of the Standard Oil Company, if such a thing can be possible, and that it is finding expression in the activity of the Carter Oil Company. Next to the Prairie Oil and Gas Company, of course, as consumers, come the independent refiners. They did not count much in the game until about 1906, although there were independent refineries prior to that date. Since then, as nearly as can be ascertained, they have used 104,441,626 barrels of crude, but it is quite possible this figure is too low, as deliveries may have gone to them otherwise accounted for. The Gulf Pipe Line Company comes next with 67,031,264 barrels, and the Texas company following a close competitor with 62,023,160 barrels.

It is estimated that at the present time there is held in storage in the mid-continent field 94,519,631 barrels of crude. Of this amount 67,523,876 barrels is owned by so-called Standard interests, 16,000,000 by the Gulf and Texas companies and 11,000,000 by independent interests. In September and October the Prairie Oil and Gas Company was drawing upon its reserve stocks at the rate of 37,500 barrels a day and at the close of the year was taking 33,000 barrels a day out of storage. At the rate of stock depletion the past three months the present apparently enormous and inexhaustible supply would be wiped out in a little over three years. Others have been drawing more heavily than the Prairie upon their reserve supply.

At the beginning of 1915 the potential production of the field was 385,000 barrels a day; at its close 280,000 barrels, having come up from 258,000 in October. At the beginning of the year about 400 wells a month were being drilled; at its close 1,130 a month. During the first half of 1914 from 1,000 to 1,250 wells a month were completed. The prospects at this time are that there will be a steady increase in number of wells drilled and in production, with indications of general storage of oil before end of year. Some are storing oil now, hoping for still higher prices.

Production by Years.

	Barrels.
Prior to pipe line, 1899	442,379
1900	74,714
1901	179,151
1902	331,749
1903	1,071,015
1904	5,603,036
1905	12,454,818
1906	21,649,154
1907	46,161,654
1908	48,274,782
1909	48,007,267
1910	53,429,313
1911	59,332,850
1912	53,607,472
1913	65,746,859
1914	101,092,263
1915	121,998,915
Total	639,502,391

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Pipe Line Runs by Years.

PRAIRIE OIL AND GAS COMPANY.

	barrels.
Prior to pipe line, 1899	442,379
1900	74,714
1901	179,151
1902	331,749
1903	1,071,013
1904	5,603,036
1905	11,854,818
1906	21,194,154
1907	35,610,340
1908	33,246,282
1909	28,773,727
1910	31,587,313
1911	34,671,780
1912	30,870,200
1913	38,720,242
1914	40,366,859
1915	31,261,566
Total	345,879,325

GULF PIPE LINE COMPANY.

	Barrels.
1907	5,424,569
1908	5,638,300
1909	6,728,490
1910	7,941,500
1911	8,218,700
1912	7,514,000
1913	7,590,800
1914	8,097,905
1915	9,877,000
Total	67,031,264

THE TEXAS COMPANY.

	Barrels.
1907	3,484,245
1908	5,371,000
1909	7,329,500
1910	7,513,000
1911	8,047,370
1912	6,830,766
1913	7,013,167
1914	7,587,593
1915	8,846,519
Total	62,023,160

INDEPENDENT REFINERS.

	Barrels.
Prior to 1906	600,000
1906	500,000
1907	1,642,500
1908	3,999,200
1909	5,175,550
1910	6,387,500
1911	8,395,000
1912	8,392,500
1913	12,422,650
1915	21,390,000
Total	104,444,626

Kansas Production.

ENTIRE OUTPUT OF CRUDE TO JANUARY, 1916.

	Barrels.
Prior to pipe line	438,154
1900	68,564
1901	169,151
1902	295,209
1903	931,015
1904	4,236,336
1905	3,932,868
1906	3,075,571
1907	3,331,404
1908	2,473,107
1909	1,032,117
1910	1,129,313
1911	2,907,150
1912	2,182,042
1913	2,171,659
1914	3,850,000
1915	4,115,800
Total	36,299,460

Oklahoma Production.

ENTIRE OUTPUT OF CRUDE UP TO JANUARY 1, 1916.

	Barrels.
Prior to 1900	4,225
1900	6,150
1901	10,000
1902	26,540
1903	140,000
1904	1,366,700
1905	8,561,950
1906	18,618,583
1907	42,830,250
1908	45,801,675
1909	46,975,150
1910	52,390,000
1911	56,425,700
1912	51,425,430
1913	63,575,200
1914	97,242,263
1915	117,883,115
Total	603,202,931

Kansas Production, 1915.

1915.	Barrels.
January	378,200
February	324,120
March	362,400
April	348,100
May	361,150
June	322,500
July	330,000
August	321,000
September	314,400
October	326,430
November	340,000
December	387,500
Total	4,115,800

Pipe Line Figures, 1915.

Prairie Oil and Gas Company

RUNS.

1915.	Total barrels.	Daily average.
January	2,855,566	92,115
February	2,576,000	92,000
March	2,790,000	90,000
April	2,250,000	75,000
May	2,790,000	90,000
June	2,100,000	70,000
July	2,790,000	90,000
August	2,945,000	95,000
September	2,700,000	90,000
October	2,225,000	75,000
November	2,550,000	85,000
December	2,700,000	87,100
Total, 1915	31,261,566	
1914	40,366,859.29	110,594.00
1913	38,720,241.97	106,080.14
1912	30,870,205.98	84,303.61
1911	34,671,780.08	94,941.36
1910	31,587,312.59	86,509.45
1909	28,773,726.98	78,888.06

DELIVERIES.

1915.	Total barrels.	Daily average.
January	3,469,542	111,921
February	3,214,929	114,818
March	3,565,000	115,000
April	3,681,157	122,705
May	3,941,639	127,149
June	3,576,520	119,217
July	3,568,185	115,102
August	3,790,903	122,287
September	3,821,040	127,368
October	3,870,762	124,838
November	3,763,745	125,458
December	3,727,093	120,229
Total, 1915	43,900,124	120,374
1914	39,268,292.74	107,858.00
1913	34,850,073.17	95,419.08
1912	33,668,504.38	92,004.03
1911	33,621,304.85	92,153.60
1910	31,961,187.97	87,543.79
1909	26,856,722.80	73,540.70

STOCKS.

1915.	Barrels.
January 1	43,467,926
February 1	42,555,092
March 1	43,875,000
April 1	44,500,000
May 1	46,800,000
June 1	48,100,000
July 1	53,150,000
August 1	52,000,000
September 1	49,200,000
October 1	47,000,000
November 1	45,875,000
December 1	44,790,000
January 1, 1916	43,445,484

(Draft upon stocks January 1, 1916, was 33,000 barrels a day by Prairie Oil and Gas Company, having decreased from 37,500 barrels a day.)

Gulf Pipe Line.

RUNS, DELIVERIES AND STOCKS, 1915.

1915.	Total runs, barrels.	Runs, average per day.
January	694,400	22,400
February	711,200	25,400
March	809,100	26,100
April	807,000	26,900
May	849,400	27,400
June	831,000	27,700
July	923,800	29,800
August	964,100	31,000
September	843,000	28,100
October	780,500	25,500
November	801,000	26,700
December	852,500	27,500
Total	9,877,000	

1915.	Total deliveries, barrels.	Deliveries average per day.
January	641,700	20,700
February	593,600	21,200
March	641,700	20,700
April	684,000	22,800
May	781,200	25,200
June	897,000	29,900
July	809,100	26,100
August	883,500	28,500
September	795,000	26,500
October	759,500	24,500
November	768,000	25,600
December	781,200	25,200
Totals	9,035,500	

1915.	Barrels stored.
January	52,700
February	117,600
March	167,400
April	123,000
May	68,200
June	*66,000
July	114,700
August	80,600
September	48,000
October	31,000
November	33,000
December	71,300
Total	907,500

*Drawn upon.

1915.	
Total runs	9,877,000
Delivered	9,035,500
Stored	907,500
Total	9,943,000
Drawn on stocks	66,000
	9,877,000
Total present stocks	*7,800,000

*Including storage of Gypsy Oil Company.

GULF RUNS AND SHIPMENTS SINCE COMING TO OKLAHOMA.

Year.	Runs, barrels.	Shipments, barrels.
1909	6,728,490	6,187,060
1910	7,941,500	7,941,500
1911	8,218,700	7,680,900
1912	7,514,000	7,508,700
1913	7,590,800	7,591,100
1914	8,097,905	7,270,401
1915	9,877,000	9,035,500

The Texas Company.

1915.	Runs.	Daily average.
January	681,844	21,995
February	412,812	14,743
March	802,067	25,873
April	762,336	25,411
May	932,710	30,087
June	769,667	25,657
July	882,207	28,461
August	780,161	25,166
September	691,783	23,059
October	702,324	22,654
November	703,008	23,433
December	728,500	23,500
Totals, 1915	8,846,519	24,170
1914	7,587,593	
1913	7,013,167	
1912	6,830,766	
1911	8,047,370	
1910	7,513,000	
1909	7,329,500	

1915.	Deliveries.	Daily average.
January	645,614	20,826
February	412,812	14,743
March	778,183	25,006
April	806,149	26,771
May	709,494	22,884
June	719,814	23,994
July	869,529	28,049
August	841,210	27,136
September	702,446	23,415
October	747,572	24,115
November	736,378	24,545
December	728,500	23,500
Totals	8,688,701	23,740
1914	7,134,899	
1913	7,130,274	

1915.	Stocks.
January	3,836,230
February	3,835,429
March	3,835,429
April	3,840,050
May	3,870,500
June	3,900,000
July	5,913,000
August	6,000,000
September	7,000,000
October	8,500,000
November	8,600,000
December	8,000,000
Stocks January 1, 1916	8,202,335

Magnolia Pipe Line Company.

1915.	Runs. Barrels.	Daily average. Barrels.
January	330,000	10,645
February	27,000	964
March	31,000	1,000
April	125,000	4,168
May	170,500	5,500
June	213,000	7,100
July	300,000	9,680
August	248,000	8,000
September	350,000	11,666
October	401,400	12,950
November	475,980	15,866
December	516,000	16,000
Totals, 1915	3,187,940	8,628
1914	2,660,150	7,990

Total stocks, January 1, 1916, 1,021,547 barrels.

Present Estimated Production of Field by Districts.

JANUARY 1, 1916.

	Barrels daily.
Kansas (not Augusta)	12,000
Augusta-Eldorado	7,000
Ramsey, Okla.	1,000
Copan, Okla.	1,140
Canary Pool	1,000
Dewey-Bartlesville	11,180
Wann	1,893
Hogshooter	1,550
Curl Creek	795
Osage	26,385
Cleveland	6,225
Vera	1,053
Bird Creek	13,990
Jenks	2,814
Bixby	1,635
Bald Hill	3,715
Morris	5,368
Henryetta (Schulter Tiger F)	4,040
Hamilton Switch	750
Mounds	5,237
Glenn	13,730
Inola	450
Wagoner	131
Boynton	7,500
Lost City-Red Fork	1,217
Muskogee	1,100
Cherokee Shallow	11,785
South Coffeyville	95
Ponca and Newkirk	1,038
Blackwell	500
Stone Bluff	2,000
Kellyville	1,450
Cushing (Inc. Fox Spur)	97,000
Total	327,168

Cushing Oil in Steel Storage.

Company.	Jan. 1, 1915. Barrels.	Jan. 1, 1916. Barrels.
Black Panther Co.	118,000	.....
Cortez Oil Co.	150,000	162,165
Cushing G. & G.	177,500	.....
Devonian Oil	873,900	.....
Shulthis et al.	47,400	.....
Gunsburg & Forman	1,768,400	.....
Gypsy Oil Co.	550,000	647,000
Hill O. & G. Co.	226,600	93,140
B. B. Jones	1,267,400	491,735
White & Sinclair	4,509,500	594,985
J. H. Markham, Jr.	900,000	.....
McMan Oil Co.	1,758,750	.....
Producers' Oil Co.	1,989,000	5,057,830
Quaker O. & G.	1,787,300	3,143,435
C. B. Shaffer	704,500	915,790
Silurian Oil Co.	610,750	1,076,840
Elwood Oil Co.	535,500	.....
Foxaweld Oil Co.	900,000	.....
Twin State Oil	110,000	.....
Wordan tanks & miscel.	875,000	350,000
Roxanna Pet. Co.	.....	391,795
N. Am. Ref. C.	.....	108,600
Pierce Oil Corp.	.....	108,500
Cosden Ref. Co.	.....	172,985
Milliken Ref. Co.	.....	29,190
Constantin Ref. Co.	.....	245,200
Chanute Ref. Co.	.....	262,960
*Standard Interests	.....	33,397,120
Totals	23,313,500	47,240,370
Gain, 1915, 23,935,890 barrels.		
*Standard Group:—		
Carter Oil Co.		17,701,200
Prairie Co.		9,801,500
S. O. of Indiana		4,262,400
Okla Oil Co.		1,093,245
Magnolia Pet.		538,775

Cushing Pool Notes.

The highest production at Cushing was reached in May, 300,000 barrels a day.

About 5,900 barrels a day was still going into storage January 1, 1916.

The Standard Oil Company of Indiana took 53,200 barrels of storage oil out of tank in December.

The Carter Oil Company reduced its stocks in December 26,825 barrels.

The Standard interests are drawing upon their reserve stocks about 80,000 barrels a month.

The Milliken Refining Company reduced its supply of Cushing crude 100,000 barrels in December.

The Standard Oil Company at the close of 1915 owned more oil in Cushing storage than owned by all others, including its own, at the beginning of the year. Total Cushing storage January 1, 1915, was 23,313,500 barrels; total Cushing oil in storage owned by Standard December 31, 1915, 33,397,140 barrels.

At the beginning of 1915 no Cushing storage was owned by independent refineries; at its close they owned 927,535 barrels, out of a total of 47,000,000 barrels—a mere drop.

There are now 150 producing leases in the Cushing district.

The gravity of Cushing crude now runs from 38 to 40 Baume, the better oil coming from the south end. From 23 to 26 per cent. is recovered, whereas as high as 35 per cent. was recovered before the quality deteriorated. Crude from the Fox extension tests 45 gravity and recovers about 30 per cent. gasoline.

There have been 2,766 wells drilled in the Cushing pool, all sands. Of this number 2,472 were successful producers, 132 were gas wells and 162 were failures. At present 1,295 are producing. Part of the discrepancy is accounted for by the fact that when the shallow sand wells were drilled deeper they were counted as new wells.

Iron Storage Tanks.

PRAIRIE OIL AND GAS COMPANY, JANUARY 1, 1916.

	1910.	1912.	1914.	1916.
Kansas	330	330	332	292
Oklahoma	781	857	850	970
Osage	20	14	21	11
Trunk Lines	26	32	37	..
Prairie P. L. Co.	..	..	..	120
Totals	1,157	1,233	1,240	1,393

Cushing Daily Production, Close of 1914-15.

Company.	Daily prod., Jan. 1, 1915.	No. wells Jan. 1, 1916.	Daily prod., Jan. 1, 1916.
McMan Oil Co.	45,300	81	11,827
White & Sinclair	26,200	99	5,457
Prairie Oil & Gas Co.	24,300	146	4,967
J. H. Markham	19,200	2	215
B. B. Jones	15,305	76	6,059
Gypsy Oil Co.	12,000	89	9,910
Devonian Oil Co.	11,880	..	..
Gunsburg & Forman	10,460	63	3,418
Producers' Oil Co.	10,080	78	5,300
Slick Oil Co.	9,450	74	5,700
Quaker Oil & G. Co.	9,350	32	3,050
Twin State Oil Co.	9,300	10	910
Gem Oil Co.	7,825	25	1,705
Black Panther Oil	6,875	24	2,000
C. B. Shaffer	4,230	83	5,870
Aiken Oil Co.	3,450	5	690
Silurian Oil Co.	5,800	32	3,140
Numa Oil Co.	3,500	..	..
Exeter Oil Co.	3,060	..	..
Mid-Co. Pet. Co.	3,000	10	4,535
Hill O. & G. Co.	1,950	38	4,175
Clover Leaf Oil Co.	1,850	13	1,000
Cortez Oil Co.	1,750	9	1,495
Cushing G. & G. Co.	1,400	7	375
Frank Brown	1,350	4	65
Katy Oil Co.	1,350	11	410
Southwest Oil Co.	600	5	130
Shulthis et al.	1,800	..	....
Samoset Oil Co.	300	4	220
Channel Oil Co.	240	..	....
Pierce Oil Corp.	200	7	80
Pleasant Hill O. & G.	60	2	725
Elwood Oil Co.	1,750	..	....
Badger Oil Co.	....	4	230
Carter Oil Co.	....	49	2,100
Curtis & Aiken	....	9	520
Gypsy Oil Co.	....	10	315
Mohawk Oil Co.	....	6	180
Minnehoma Oil Co.	....	10	620
Monitor Oil Co.	....	10	5,325
North Pool Oil Co.	....	4	90
Okla Oil Co.	....	22	1,647
Pulaski Oil Co.	....	1	30
Roxanna Pet. Co.	....	32	1,355
Southern Oil Co.	....	2	75
Sperry O. & G. Co.	....	1	35
Frank Fox Oil Co.	....	3	60
Eastern Oil Co.	....	6	490
F. A. Chapman	....	2	600
Totals	254,600	1,295	97,135 Wells.
Cushing deep sands			1,264
Fox Extension			31 Barrels.
Deep sand production			90,990
Fox Extension			6,145
Wheeler & Layton sand pool			6,500
Total Cushing, including Fox			103,635

Pipe Lines in the Mid-Continent Field.

Name of company.	Capacity, barrels.
Prairie Pipe Line—	
To East	125,000
Gulf Pipe Line—	
To Gulf	29,000
Texas Pipe Line—	
To Gulf	25,000
Oklahoma Pipe Line—	
To Baton Rouge	25,000
Magnolia Pipe Line—	
To Fort Worth and Dallas (the McMan Pipe Line, Cushing to Addington connecting), 8-inch line, 155 miles	20,000
Producers' Oil Company—	
8-inch line, Healdton to Gainesville, Tex., 48 miles	18,000
Milliken Pipe Line—	
6-inch line, Cushing to Vinita, Okla., 80 miles	6,000
Cosden Pipe Line—	
6-inch line, Cushing to Tulsa, Okla., 40 miles	10,000
Cosden & Co.—	
6-inch line, Boynton to Tulsa, Okla., 30 miles	6,000
Indiahoma Refining Company—	
3-inch line, Cushing to Okmulgee, Okla.	3,000
Ponca Refining Company—	
4-inch line, Ponca to Cushing, 30 miles	4,000
Pierce Oil Corporation—	
6-inch line, field to Tulsa, Okla., 35 miles	10,500
Crown Pipe Line—	
Boynton and Haskell to Muskogee, Okla.	4,000
Cushing Gasoline Company—	
Cushing field to Cushing City, 15 miles	6,500
Southern Oil Corporation—	
4-inch line, Cushing to Yale, Okla.	7,000
Slick & Jones—	
4-inch line, Cushing to Bristow, Okla.	6,000
Hill Oil and Gas Company—	
6-inch line, Cushing to Depew	18,000
Chanute Refining Company—	
4-inch line, Cushing field to Cushing refinery	6,000
Kathleen Petroleum Company—	
4-inch line, Cushing to Yale, Okla.	7,000
J. H. Markham, Jr.—	
4-inch line, North Cushing to Yale, Okla.	8,000
C. B. Shaffer—	
6-inch and 4-inch line, Cushing field to Cushing refinery	11,000
McMan Oil Company—	
Four 4-inch lines from North Cushing to Norfolk	20,000
Silurian Oil Company—	
Two 4-inch lines, North Cushing to Norfolk	14,000
Gunsburg & Foreman—	
4-inch line, field to Cushing	7,000
Quaker Oil and Gas Company—	
Two 4-inch lines, Cushing to Norfolk	14,000
B. B. Jones—	
4-inch line, Cushing to Yale, Okla.	7,000
National Refining Company—	
Bartlesville to Coffeyville, Kan., 23 miles	6,000
Petroleum Products Company—	
4-inch and 6-inch lines, Nowata shallow sand, Canary pool, Wayside, etc., to Independence, 170 miles	6,000
Cudahy Refining Company—	
Coffeyville, south into Oklahoma, 128 miles	6,000
Kansas Oil Refining Company—	
Shallow sand to Coffeyville, Kan., 60 miles	3,000
Kanotex Refining Company—	
Dewey, Okla., and Wayside to Caney, Kan., 43 miles	1,500
Sapulpa Refining Company—	
To Okmulgee county, 33 miles	1,800
North American Refining Company—	
Pemeta into field, 10 miles	1,500
Phoenix Refining Company—	
Gathering lines from refinery out of Sand Springs, 24 miles	2,000
Constantin Refining Company—	
To Tulsa, 21 miles	1,000

Crude Fluctuation in 1915.

1915.	Estimated barrels daily outside Cushing.	Estimated barrels daily, Cushing.	Estimated daily prod., entire field.
January 28	135,000	248,000	384,000
February 18	123,000	238,500	362,500
March 25	120,000	209,750	329,750
April 29	115,000	248,000	363,000
May 27	110,000	290,000	400,000
June 24	110,000	250,000	360,000
July 29	110,000	195,000	305,000
August 26	115,000	170,000	285,000
September 30	125,000	140,000	265,000
October 28	145,000	113,000	258,000
November 28	168,000	98,000	266,000
December 25	198,000	90,000	288,000

The above figures represent the estimated potential production of the field at the periods mentioned outside of Cushing and in the Cushing district, and the total production of the field. It will be noted the total output of the field is about 100,000 barrels a day less at the close of 1915 than at its beginning.

Crude Market Fluctuations.

MID-CONTINENT FIELD.

1912.	
January 2	$0.53
January 15	.55
January 25	.57
February 5	.60
April 10	.62
April 16	.64
May 7	.66
May 17	.68
July 16	.70
November 3	.73
November 27	.76

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Barium Hydrate
Barium Nitrate
Bleaching Powder (Lime Chloride)
Carbon Tetrachloride
Epsom Salts (Magnesium Sulphate)
Iron by Hydrogen
Manganese Oxide
Naphthalene
Phosphoric Acid, Syrupy and Glacial
Platinum Salts
Potash, Bicarbonate
Potash, Bichromate
Potash, Binoxalate
Potash Carbonate, Calcined and Hydrated
Potash, Chlorate
Potash, Oxalate
Potash, Permanganate
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Soda, Bichromate
Soda, Chlorate
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KANSAS CITY, Kemper Bldg.
NEW ORLEANS, LA., 613 Canal Bank Bldg.
PHILADELPHIA, 941-943 Drexel Bldg.
ST. LOUIS, 1022 Wright Bldg.
SAN FRANCISCO, 625 Market Street

CHEMICAL WORKS:

PERTH AMBOY, N. J.

ELECTROLYTICAL WORKS:

(Niagara Electro Chemical Co.)
NIAGARA FALLS, N. Y.

WAREHOUSES:

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Foot of 39th Street, South Brooklyn, New York

December 11	.78
December 16	.80
December 24	.83
1913.	
January 27	.86
January 29	.88
July 7	.93
July 21	.98
August 19	1.03
1914.	
February 2	1.05
April 8	1.00
April 10	.95
April 13	.90
April 15	.85
April 27	.80
April 29	.75
September 22	.65
October 1	.55
1915.	
February 8	.45
February 15	.40
August 2	.50
August 4	.55
August 11	.60
August 19	.65
August 21	.75
September 11	.80
November 13	.90
November 15	1.00
December 13	1.10
December 14	1.20

HEALDTON PRICES.

1915.	
January 1	$0.50
February 8	.30
September 24	.35
October 11	.40
October 25	.45
November 15	.55
December 14	.60

Many Tanks Built in 1915.

There was great activity in steel storage tank construction in 1915. During the year 23,935,890 barrels of oil was placed in storage at Cushing alone. Independent refiners also were especially active in securing reserve stocks. Most of the tanks were built for the Cushing and Healdton pools, but some were constructed outside of these districts. During the earlier part of the year about 1,500,000 barrels of tankage and oil were destroyed by lightning and fire. The big tank farms are located at Cushing, Terlton and Healdton.

The cost of erecting a 55,000-barrel tank at Cushing, including material, grading, etc., is from $11,000 to $15,000, some grades costing much more than others owing to necessary blasting. It is estimated steel storage tanks in the mid-continent field have cost about $33,000,000.

Independent refiners are acquiring more tanks than heretofore. The necessity of storing in dull seasons for the consuming periods is becoming more and more apparent. Refiners find it necessary to carry millions of gallons of fuel oil and kerosene, to say nothing of crude.

Following table shows ownership and number of steel storage tanks in Kansas and Oklahoma:—

Steel Storage Tanks.

MID-CONTINENT.

	No. Tanks.
Prairie Oil and Gas Company	1,273
Prairie Pipe Line Company	120
Carter Oil Company	372
The Texas Company	275
Standard Oil Company of Indiana	84
Quaker Oil and Gas Company	58
White & Sinclair	37
McMan Oil Company	61
C. B. Shaffer	56
Silurian Oil Company	32
B. B. Jones	23
Okla. Oil Company	22
Santa Fe Railway	25
Cosden & Co.	29
Roxanna Petroleum Company	20
Chanute Refining Company	10
Hill Oil and Gas Company	10
Pierce Oil Corporation	10
Sapulpa Refining Company	11
Peerless Refining Company	11
American Refining Company	4
National Refining Company	9
Petroleum Products Company	7
Cudahy Refining Company	5
Muskogee Refining Company	3
Constantin Refining Company	4
Ardmore Refining Company	3
Producers' Refining Company	3
Ponca Refining Company	2
Milliken Refining Company	6
International Refining Company	9
Indahoma Refining Company	3
Uncle Sam Oil Refining Company	2
Phoenix Refining Company	3
Producers' Oil Company	4
Gypsy Oil Company	12
Frank Brown	5
Slick Oil Company	3
Lawrence Gas Company	3
Kewanee Oil and Gas Company	4
Ardworth Oil Company	4
The Sun Oil Company	5
Corsicana Petroleum Company	7
Magnolia Petroleum Company	4
Cortez Oil Company	3
Gates Oil Company	3
Hernstadt & Co.	4
Crystal Oil Company	2
Healdton Oil Company	2
Twin State Oil Company	2
Others	14
Total	2,660
New tanks building	20

Estimated amount of oil stored in these tanks, 129,500,000 barrels.

FIELD OPERATIONS.

Wells Drilled by Years.

MID-CONTINENT FIELD.

Year.	Number drilled.
1903 and before	1,590
1904	3,557
1905	4,021
1906	3,876
1907	4,720
1908	3,404
1909	3,850
1910	4,856
1911	4,956
1912	6,996
1913	11,494
1914	10,653
1915	5,848
Grand total	69,913

Wells Drilled 1915.

MID-CONTINENT FIELD.

	Comp.	Oil.	Gas.	Dry.	Prod.
January	394	267	60	67	101,106
February	400	272	65	63	94,947
March	315	211	36	68	69,857
April	373	252	52	59	112,721
May	297	217	36	44	92,217
June	323	237	37	49	82,400
July	327	233	43	51	50,268
August	372	250	51	71	37,350
September	391	221	84	86	21,306
October	592	439	55	98	44,698
November	932	638	114	180	50,235
December	1,132	867	98	167	39,330
Totals	5,848	4,114	731	1,003	796,634
1914	10,653	8,216	839	1,598	994,951
1913	11,494	8,857	1,008	1,629	293,085
1912	6,996	5,256	745	995	224,436
1911	4,956	3,653	577	731	177,658
1910	4,856	3,710	488	658	182,280

Wells Drilled by Districts the Last Three Years.

MID-CONTINENT FIELD.

	1913.	1914.	1915.
Kansas	2,180	2,394	1,123
Cherokee D.	3,314	1,805	488
Cherokee S. S.	1,339	1,460	606
Osage	651	577	204
Cleveland	286	113	75
Creek	2,646	2,835	1,770
Cushing	883	768	1,015
Kay County	62	114	35
S. W. Oklahoma	...	...	451
Miscellaneous	132	587	81
Totals	11,493	10,653	5,848
Former years			64,065
Grand total			69,913

Mid-Continent Well Drilling Record, 1915.

There were only half as many wells drilled in the mid-continent field in 1915 as during the previous year, and yet there was an amazing over-production. This condition is partly accounted for by the fact that during 1915 refiners secured an average of 26 per cent. of gasoline from the crude they used as a result of the big production at Cushing, and by the further fact that uniformly big wells in the Cushing district and an almost total suspension of drilling in the small-well districts of the field. The Standard Oil Company refineries, using Burton process of refining, are not using nearly so much crude as formerly and yet are producing much more gasoline. Thus while only 5,848 wells were drilled in 1915, against 10,653 in 1914, there was an almost complete congestion from over-production during more than half of the year 1915.

During the year 1915 there were 5,848 wells drilled in the mid-continent field, of which number 4,114 were successful oil producers, 731 were gas wells and 1,003 were failures. New production was estimated at 796,634 barrels. When it is considered the total production of all wells in the field is now only approximately 280,000 barrels a day, the unreliability of first estimated production of wells is appreciated. Compared with the field report for 1914, there were 4,805 fewer wells drilled in 1915, a decrease of 4,102 oil wells, 108 gas wells and 595 failures. In fact, there were fewer wells drilled in 1915 than in any other year since 1911, when there were 4,956 completions. The average production of all oil wells drilled in 1915 was 121 barrels, a jump from an average of 33 barrels in 1913. Of the total number of wells drilled in 1915, 70.35 per cent. were successful in finding oil in paying quantities; 12.5 per cent. were gas wells, so that 82.8 per cent. were successful oil and gas wells and only 17.15 per cent. were absolute failures. In 1914 77.12 per cent. of the wells drilled were producers, 7.88 per cent. were gassers and 15 per cent. were failures; in 1913 77 per cent. were "oilers," 14.2 per cent. were gassers and 8.8 per cent. were dusters. The fact that 86.3 per cent. of all the wells drilled in the mid-continent field during the past three years have been successful in finding oil or gas in paying quantities tends to prove the statement that 87 per cent. of the men who engage in the oil business and stick to it win out. Drilling for oil, according to these statistics, ceases to be a speculation and becomes a very conservative and reliable business.

Of the total number of wells drilled in the mid-continent field in 1915, 4,725 were in Oklahoma, a number this year 3,474 were oil producers, 387 were gas wells and 864 were failures. It is interesting to observe that during the previous year there were 8,259 wells drilled in Oklahoma, of which 6,393, or about double the number, were producers; 534 were gassers and 1,326 were failures. More than twice as many wells were drilled in Oklahoma in 1913 as in 1915, the "flood" year. There was practically no drilling in the Cherokee Nation last year, compared with the year before. In 1914 1,805 wells were drilled in the Cherokee deep sand district and 1,460 in the shallow sand district, whereas last year only 488 were drilled in the deep sand and 606 in the shallow sand, a total in 1915 of 1,094, against 1,460 in the shallow sand alone in 1914. The largest number of wells drilled in a single district was 1,015 in the Cushing pool, and this is where practicaly all the big production came from. There were 1,570 completions in the Creek nation, in which Cushing is located, making a total credit of completions for the Creek 2,785, against a total of 2,835 in 1914. The Creek has now led in number of completions two years; previous to that time the Cherokee for years had been the scene of greatest activity. At the beginning of the year it was thought the next pool would be developed at Paden, where the Prairie Oil and Gas Company had a shut-in well that had the earmarks of a gusher. Later this was "blew up." During the year the Boynton-Cole pool was developed and Stone Bluff got started with evidence of a rich output as further wells are drilled. Cushing reached its height and receded, but at the close of the year the Fox extension of the pool to the south gave promise of holding the production, at that time steady if it did not turn the tide and increase the Cushing output for a while.

Toward the close of the year the discovery of gusher wells at Augusta, Kan., had started a "back-to-Kansas" movement of operators. However, there is vastly more field work in progress all over the mid-continent region than there was at the beginning of the year. In January, 1915, 394 wells were drilled; in December there were 1,132 completions, and the prospects are January, 1916, will witness the completion of 1,300 wells or more, the largest number in the history of the field.

Of the 5,848 wells drilled in 1915, 1,123 were located in Kansas, and of this number 640 were successful oil wells, 344 were gas wells and 139 were failures. Compared with the previous year this was a decrease of 1,271 wells drilled, 1,177 oil producers, a gain of 39 gassers and a decrease of 133 failures. Three times as many wells were drilled in Kansas in December as in October, showing the effect of the "back-to-Kansas" movement. The average of Kansas producing wells in 1915 was only twelve barrels, but the indications are the average in 1916 will be much larger. The largest amount of field work in any one county in Kansas was 382 wells drilled in Old Montgomery county, which has always held that distinction since the beginning of real operations in Kansas.

During the year an effort was made to develop a field in Cowley county, where the Monitor Oil Company has a well; near the town of Dexter, which after two years is still making over 90 barrels a day. But so far operations in Cowley county have not started anything exciting. What appears to be the beginning of a prolific pool, however, was opened north of this in Butler county. Some fine wells were drilled at Augusta, starting off at from 1,500 to 3,000 barrels a day, and a number of excellent producers was also drilled at Eldorado. Producing sands are found all the way from 640 to 2,500 feet deep, and it is almost certain a large pool will be developed. Leases have been taken up for miles in every direction. Most of the work is being done by Oklahoma operators. Eldorado crude refines 21.75 per cent. gasoline and Augusta 15.5 per cent. gasoline, making both far above the average Kansas crude, outside of Chautauqua county. There will be a big drilling campaign in this part of Kansas the coming year.

Nearly 70,000 Wells Drilled.

Since the beginning of the oil producing business in Kansas and Oklahoma 69,913 wells have been drilled. Of this number 37,343 are still producing oil wells, while 32,570 have either been gas wells, failures or have become exhausted. That is to say, 53.7 per cent. of all the wells drilled in this field from the beginning are still producing oil and connected to some pipe line; 46.3 per cent. have been gas wells, failures or have been producing wells and have become exhausted.

NUMBER OF WELLS ON PRAIRIE PIPE LINE, JANUARY 1, 1916.

	1912	1914.	1916.
Kansas	1,531	2,593	3,848
Osage	1,293	1,975	1,988
Cherokee deep	3,734	6,685	6,736
Cherokee shallow	5,288	3,543	6,885
Creek	1,000	2,324	3,587
Cleveland	281	540	607
Ponca City	....	....	45
Outlying	....	....	79
Totals	13,127	17,657	23,775
On other lines	7,129	13,476	13,568
Total prod. wells	20,256	31,133	37,343
Gas, dry or exhausted	14,666	21,279	32,570
Grand total	34,922	53,412	69,913

In 1912-13 about 3,000 wells in the shallow sand district disconnected from the Prairie lines and went to the Milliken and Chelsea lines. In 1915 these came back to the Prairie, the other lines having been taken up.

The following tables give the field statistics in detail for the past year, with comparisons with the four years previous:—

Kansas—Total Wells Drilled.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	92	50	33	9	636
February	96	40	43	13	654
March	25	17	7	1	181
April	36	12	19	5	106
May	24	7	14	3	67
June	32	9	19	4	95
July	57	17	29	11	193
August	82	34	34	14	345
September	82	28	44	10	293
October	97	72	13	12	593
November	214	135	50	29	1,415
December	286	219	39	28	3,360
Totals	1,123	640	344	139	7,938
1914	2,394	1,817	305	272	18,036
1913	2,180	1,518	346	298	18,977
1912	1,012	536	301	175	11,219

Kansas Districts—Wells Drilled in 1915.

County.	Comp.	Oil.	Gas.	Dry.	Prod.
Montgomery	382	200	131	51	1,689
Chautauqua	166	114	25	27	1,710
Wilson	25	10	13	2	67
Neosho	149	96	43	10	938
Allen	67	49	14	4	455
Franklin	121	77	35	9	578
Miami	56	35	6	15	385
Butler	23	17	5	1	1,655
Miscellaneous	134	42	72	20	461
Totals	1,123	640	344	139	7,938
1914	2,394	1,817	305	272	18,036
1913	2,180	1,518	364	298	18,977
1912	1,012	534	301	175	11,219

Kansas Oil Wells, 1915.

	Montgomery.	Chautauqua.	Wilson.	Neosho.	Allen.
January	23	12	2	3	3
February	16	14	1	..	5
March	4	3	..	..	1
April	4	2	1	..	..
May	1	..	..	..	1
June	5	3	..	..	1
July	3	2	1	3	2
August	17	2	2	1	1
September	12	5	1	3	..
October	27	5	1	14	7
November	32	24	1	42	9
December	56	42	..	30	20
Totals	200	114	10	96	49
1914	716	328	28	224	175

	Franklin.	Miami.	Butler.	Misc.	Total.
January	4	..	..	3	54
February	2	1	..	1	40
March	5	3	..	1	17
April	4	..	..	1	12
May	4	1	..	1	7
June	..	..	..	..	9
July	4	1	..	1	17
August	2	1	..	8	34
September	4	1	..	2	28
October	9	2	..	7	72
November	11	9	..	7	135
December	28	16	17	10	219
Totals	77	35	17	42	640
1914	168	132	..	46	1,817

Kansas Gas Wells, 1915.

	Montgomery.	Chautauqua.	Wilson.	Neosho.	Allen.
January	20	..	..	1	1
February	21	4	1	3	..
March	5	..	..	1	..
April	10	1	..	1	*
May	8	..	..	..	..
June	14	1	..	1	..
July	2	1	..	10	4
August	10	1	2	5	3
September	11	2	8	6	2
October	8	1	..	2	1
November	11	2	1	11	2
December	11	12	1	2	..
Totals	131	25	13	43	14
1914	138	30	12	23	8

	Franklin.	Miami.	Butler.	Misc.	Total.
January	8	..	..	3	33
February	9	..	..	5	43
March	1	..	..	..	7
April	3	..	..	3	19
May	4	..	..	2	14
June	1	..	..	2	19
July	2	..	..	10	29
August	3	2	..	8	34
September	1	..	..	14	44
October	..	..	..	1	13
November	3	2	..	18	50
December	..	2	5	6	39
Totals	35	6	5	72	344
1914	32	13	..	49	304

Kansas Dry Holes, 1915.

	Montgomery.	Chautauqua.	Wilson.	Neosho.	Allen.
January	6	..	..	..	..
February	11	1	..	..	..
March	1	..	..	..	..
April	2	2	..	..	..
May	..	2	..	1	..
June	2	..	..	..	..
July	3	2	..	1	2
August	4	2	2	..	..
September	2	5	..	..	..
October	5	1	..	1	..
November	6	7	..	2	2
December	9	5	..	5	..
Totals	51	27	2	10	4
1914	75	38	20	19	10

	Franklin.	Miami.	Butler.	Misc.	Total.
January	..	..	..	3	9
February	..	..	..	1	13
March	..	..	..	..	1
April	1	..	..	..	5
May	..	..	..	..	3
June	1	..	..	1	4
July	2	..	..	1	11
August	..	..	..	6	14
September	..	1	..	2	10
October	1	3	..	1	12
November	2	6	..	4	29
December	2	5	1	1	28
Totals	9	15	1	20	139
1914	29	43	..	38	272

Kansas New Production, 1915.

	Montgomery.	Chautauqua.	Wilson.	Neosho.	Allen.
January	175	355	12	18	30
February	180	386	8	..	35
March	36	60	..	..	7
April	45	24	7	..	..
May	15	..	..	..	10
June	20	65	..	..	10
July	38	35	5	35	30
August	175	35	12	10	8
September	130	65	8	27	..
October	235	85	5	118	45
November	285	190	10	410	95
December	355	410	..	320	195
Totals	1,689	1,710	67	938	455
1914	6,061	4,829	254	2,376	1,808

	Franklin.	Miami.	Butler.	Misc.	Total.
January	28	..	..	18	636
February	20	15	..	10	654
March	30	40	..	8	181
April	20	..	..	10	106
May	25	12	..	15	67
June	..	..	..	..	95
July	30	10	..	10	193
August	20	10	..	75	345
September	40	8	..	15	293
October	55	15	..	35	593
November	115	120	..	190	1,415
December	195	155	1,655	75	3,360
Totals	578	385	1,655	461	7,938
1914	1,304	976	*	414	18,036

MONTGOMERY COUNTY.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	49	23	20	6	175
February	48	16	21	11	180
March	10	4	5	1	36
April	16	4	10	2	45
May	9	1	8	..	15
June	21	5	14	2	20
July	8	3	2	3	38
August	31	17	10	4	175
October	31	17	10	4	175
September	25	12	11	2	130
October	40	27	8	5	235
November	49	32	11	6	285
December	76	56	11	9	355
Totals	382	200	131	51	1,689
1914	929	716	138	75	6,061
1913	877	599	176	102	5,026
1912	396	203	137	56	3,903

CHAUTAUQUA COUNTY.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	12	12	..	..	355
February	19	14	4	1	386
March	3	3	..	..	60
April	5	2	1	2	24
May	2	..	2	..	..
June	4	3	1	..	65
July	5	2	1	2	35
August	5	2	1	2	35
September	12	5	2	5	65
October	7	5	1	1	85
November	33	24	2	7	190
December	59	42	12	5	410
Totals	166	114	25	27	1,710
1914	396	328	30	38	4,829
1913	457	326	53	76	6,063
1912	225	175	13	37	4,430

WILSON COUNTY.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	2	2	..	..	12
February	2	1	1	..	8
March	..	..	..	..	..
April	1	1	..	..	7
May	..	..	..	..	..
June	..	..	..	..	..
July	1	1	..	..	5
August	6	2	2	2	12
September	9	1	8	..	8
October	1	1	..	..	5
November	2	1	1	..	10
December	1	..	..	..	..
Totals	25	10	13	2	67
1914	60	28	13	20	254
1913	148	41	58	49	380
1912	171	..	..	..	..

NEOSHO COUNTY.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	4	3	1	..	18
February	3	..	3	..	..
March	1	..	1	..	..
April	1	..	1	..	..
May	1	..	..	1	..
June	1	..	1	..	..
July	14	3	10	1	35
August	6	1	5	..	10
September	9	3	6	..	27
October	17	14	2	1	118
November	55	42	11	2	410
December	37	30	2	5	320
Totals	149	96	43	10	938
1914	266	224	23	19	2,376
1913	314	253	30	31	4,225
1912	115	..	..	..	..

ALLEN COUNTY.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	4	3	1	..	30
February	5	5	..	..	35
March	1	1	..	..	7
April	1	..	1	..	..
May	..	..	..	..	..
June	1	1	..	..	10
July	8	2	4	2	30
August	4	1	3	..	8
September	2	..	2	..	..
October	8	7	1	..	45
November	20	20	..	..	195
Totals	67	49	14	4	448

1914	193	175	8	10	1,808
1913	179	156	8	15	2,262
1912	60	..	..	..	..

FRANKLIN COUNTY.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	12	4	8	..	28
February	11	2	9	..	20
March	6	5	1	..	30
April	8	4	3	1	20
May	8	4	4	..	25
June	2	..	1	1	..
July	8	4	2	2	30
August	5	2	3	..	20
September	5	4	1	..	40
October	10	9	..	1	55
November	16	11	3	2	115
December	30	28	..	2	195
Totals	121	77	35	9	578
1914	229	168	32	29	1,304
1913	58	53	1	4	606
1912	26	..	..	..	..

MIAMI COUNTY.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	..	..	..	..	..
February	1	1	..	..	15
March	3	3	..	..	40
April	..	..	..	..	..
May	1	1	..	..	12
June	..	..	..	..	..
July	1	1	..	..	10
August	1	1	2	..	10
September	2	1	..	1	8
October	5	2	..	3	15
November	17	9	2	6	120
December	23	16	2	6	185
Totals	56	35	6	15	385
1914	188	132	13	43	976

BUTLER COUNTY.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
December	23	17	5	1	1,655
Total	23	17	5	1	1,655

MISCELLANEOUS.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	9	3	3	3	18
February	7	1	5	1	10
March	1	1	..	..	8
April	4	1	3	..	10
May	3	1	2	..	15
June	3	..	2	1	..
July	12	1	10	1	10
August	22	8	8	6	75
September	18	2	14	2	15
October	9	7	1	1	35
November	29	7	18	4	190
December	17	10	6	1	75
Totals	134	42	72	20	461
1914	133	46	49	38	414
1913	53	12	26	15	87

Oklahoma—Wells Drilled, 1915.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	302	217	27	58	100,470
February	304	232	22	50	94,293
March	390	194	29	67	69,675
April	337	250	33	54	112,615
May	273	210	22	41	92,150
June	291	228	18	45	82,305
July	270	216	14	40	50,075
August	290	216	17	57	37,005
September	309	193	40	76	21,013
October	495	367	42	86	44,105
November	718	503	64	151	48,820
December	846	648	59	139	36,170
1914	8,259	6,399	534	1,326	976,915
Totals	4,725	3,474	387	864	788,696
1914	8,259	6,399	534	1,326	976,915
1913	9,314	7,341	643	1,330	272,936
1912	5,982	4,718	444	820	213,217

Oklahoma, by Districts.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
Cherokee D. S..	488	341	75	72	5,743
Cherokee S. S..	996	520	29	97	7,723
Osage	204	145	26	33	11,725
Cleveland	75	51	2	22	1,160
Cushing	1,015	944	19	52	633,970
Creek	1,770	1,127	159	484	62,350
Kay	35	16	11	8	1,065
S. W. Okla....	451	315	46	90	64,390
Miscellaneous	81	15	20	46	570
Totals	4,725	3,474	387	864	788,696
1914	8,259	6,399	534	1,326	976,915
1913	9,314	7,341	643	1,330	272,935
1912	5,982	4,718	444	820	213,217

Oklahoma Oil Wells, 1915.

	Cher. D. S.	Cher. S. S.	Osage.	Cleve-land.	Cush-ing.
January	19	48	10	..	57
February	13	34	23	..	63
March	11	37	12	..	75
April	11	29	12	2	107
May	13	23	2	4	111
June	9	12	1	4	120
July	12	23	6	4	107
August	17	14	6	2	89
September	15	16	2	1	57
October	53	60	14	9	58
November	64	105	23	9	50
December	104	119	35	16	60
Totals	341	520	145	51	944
1914	1,343	1,375	433	79	679

	Creek.	Kay.	S. W. Okla.	Misc.	Total.
January	68	3	10	2	217
February	89	1	9	..	232
March	50	..	9	..	194
April	78	2	8	1	250
May	48	..	7	2	210
June	72	1	8	1	228
July	46	3	15	..	216
August	66	1	21	1	216
September	80	1	20	1	193
October	117	2	52	2	367
November	187	1	60	4	503
December	226	1	96	1	648
Totals	1,127	16	315	15	3,474
1914	2,018	56	400	16	6,390

Oklahoma Gas Wells, 1915.

	Cher. D. S.	Cher. S. S.	Osage.	Cleve-land.	Cush-ing.
January	8	..	1	..	4
February	4	..	..	..	..
March	4	..	2	..	2
April	6	2	..	..	1
May	1	..	..	..	2
June	3	1	1	..	2
July	4	..	1	..	1
August	5	2	1	..	1
September	5	1	1	1	1
October	5	8	5	1	2
November	18	3	9	..	2
December	12	12	5	..	2
Totals	75	29	26	2	19
1914	224	8	46	7	36

	Creek.	Kay.	S. W. Okla.	Misc.	Total.
January	11	..	3	..	27
February	13	..	4	1	22
March	14	1	5	1	29
April	21	..	3	..	33
May	12	1	5	2	22
June	6	..	3	2	18
July	5	1	2	..	14
August	5	..	2	1	17
September	22	4	5	..	40
October	10	1	8	2	42
November	22	2	4	4	64
December	18	1	2	7	59
Totals	159	11	46	20	387
1914	164	6	41	2	534

Oklahoma Dry Holes, 1915.

	Cher. D. S.	Cher. S. S.	Osage.	Cleve-land.	Cush-ing.
January	9	1	..	..	2
February	3	1	10	..	2
March	3	4	2	..	4
April	4	4	3	..	2
May	..	1	1	4	1
June	3	2	1	1	2
July	3	3	..	..	7
August	2	5	3	1	9
September	2	1	1	3	2
October	11	14	3	1	7
November	12	10	4	6	6
December	20	11	5	6	8
Totals	72	57	33	22	52
1914	238	77	98	27	63

	Creek.	Kay.	S. W. Okla.	Misc.	Total.
January	28	1	15	2	58
February	28	..	3	3	50
March	38	..	12	4	67
April	32	..	7	2	64
May	29	..	3	2	41
June	29	..	3	4	45
July	24	1	1	1	40
August	28	..	7	2	57
September	43	1	20	3	76
October	35	1	12	2	86
November	90	3	4	16	151
December	80	1	3	5	139
Totals	484	8	90	46	864
1914	653	52	116	12	1,326

Oklahoma New Production, 1915.

	Cher. D. S.	Cher. S. S.	Osage.	Cleve-land.	Cush-ing.
January	240	375	1,360	..	94,685
February	275	548	3,285	..	85,500
March	155	980	860	..	63,250
April	145	960	565	45	105,735
May	195	475	45	135	97,750
June	180	165	65	115	75,460
July	210	290	455	75	43,655
August	215	145	650	65	30,890
September	428	195	65	25	13,695
October	745	945	1,865	170	14,240
November	1,280	1,465	1,375	215	11,785
December	1,675	1,280	1,135	325	7,325
Totals	5,753	7,723	11,725	1,160	633,970
1914	18,829	15,240	28,032	4,058	667,146

	Creek.	Kay.	S. W. Okla.	Misc.	Total.
January	2,875	125	765	45	100,470
February	4,320	40	325	..	94,293
March	2,780	..	1,650	..	69,675
April	3,965	95	1,170	35	112,615
May	3,150	..	335	65	92,150
June	5,235	65	985	35	82,305
July	2,295	450	2,645	..	50,075
August	3,275	75	1,475	225	37,005
September	4,185	60	2,370	..	21,013
October	8,700	20	17,285	75	44,105
November	9,845	75	22,720	60	48,820
December	11,665	60	12,675	30	36,170
Totals	82,150	1,065	64,390	570	788,696
1914	194,123	5,308	111,890	318	976,915

CHEROKEE DEEP SAND.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	36	19	8	9	240
February	20	13	4	3	275
March	18	11	4	3	155
April	21	11	6	4	145
May	14	13	1	..	195
June	15	9	3	3	180
July	19	12	4	3	210
August	24	17	5	2	215
September	22	15	5	2	428
October	69	53	5	11	745
November	94	64	18	12	1,280
December	136	104	12	20	1,675
Totals	488	341	75	72	5,743
1914	1,805	1,343	224	238	18,829
1913	3,314	2,782	238	294	66,713
1912	2,836	2,395	195	246	82,639

CHEROKEE SHALLOW SAND.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	49	48	..	1	375
February	35	34	..	1	548
March	41	37	..	4	980
April	35	29	2	4	880
May	24	23	..	1	475
June	15	12	1	2	166
July	26	23	..	3	290
August	21	14	2	5	145
September	18	16	1	1	195
October	82	60	8	14	945
November	118	105	3	10	1,465
December	142	119	12	11	1,280
Totals	606	520	29	57	1,723
1914	1,460	1,375	8	77	15,210
1913	1,339	1,149	34	156	14,165
1912	935	773	44	118	16,014

OSAGE.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	11	10	1	..	1,360
February	23	23	..	10	3,285
March	16	12	2	2	860
April	15	12	..	3	565
May	3	2	..	1	45
June	3	1	1	1	65
July	7	6	1	..	455
August	9	5	1	3	650
September	4	2	1	1	65
October	22	14	5	3	1,865
November	36	23	9	4	1,375
December	45	35	5	5	1,135
Totals	204	145	28	33	11,725
1914	577	433	46	98	28,032
1913	651	525	58	68	26,610
1912	492	411	20	61	24,755

CLEVELAND.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
April	2	2	..	..	45
May	8	4	..	4	155
June	5	4	..	1	115
July	4	4	..	..	75
August	3	2	..	1	55
September	5	3	1	1	25
October	11	9	1	1	170
November	15	9	..	6	215
December	22	16	..	6	325
Totals	75	51	2	22	1,160
1914	113	79	7	27	4,058
1913	286	201	15	70	13,010
1912	283	224	11	48	23,388

CUSHING.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	63	57	4	2	94,685
February	65	63	..	2	85,500
March	81	75	2	4	63,250
April	110	107	1	2	105,735
May	113	111	1	1	87,750
June	124	120	2	2	75,460
July	115	107	1	7	43,655
August	99	89	1	9	30,890
September	60	57	1	2	13,695
October	67	58	2	7	14,240
November	58	50	2	6	11,785
December	60	50	2	8	7,325
Totals	1,015	944	19	52	633,970
1914	768	679	36	53	667,146
1913	883	770	65	48	83,483
1912	100	79	12	9	10,665

CREEK.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	107	68	11	28	2,875
February	130	89	13	28	4,320
March	102	50	14	38	2,780
April	131	78	21	32	3,965
May	89	48	12	29	3,150
June	107	72	6	29	5,235
July	75	46	5	24	2,295
August	99	66	5	28	3,275
September	145	80	22	43	4,185
October	162	117	10	35	8,760
November	299	187	22	90	9,845
December	324	226	18	80	11,665
Totals	1,770	1,127	159	484	62,350
1914	2,835	2,018	164	653	124,129
1913	2,646	1,939	202	605	75,689
1912	1,846	875	150	321	62,593

KAY.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	4	3	..	1	125
February	1	1	..	..	40
March	1	..	1	..	..
April	2	2	..	..	95
May	1	..	1	..	..
June	1	1	..	..	55
July	5	3	1	1	450
August	1	1	..	..	75
September	6	1	4	1	60
October	4	2	1	1	20
November	6	1	2	3	75
December	3	1	1	1	60
Totals	35	16	11	8	1,065
1914	114	56	6	52	5,308
1913	62	35	5	22	2,549
1912	87	40	22	25	3,830

SOUTHWEST OKLAHOMA.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	28	10	3	15	765
February	10	9	4	3	325
March	26	9	5	12	1,650
April	18	8	2	7	1,170
May	15	7	5	3	335
June	14	8	3	3	985
July	18	15	2	1	2,645
August	30	21	2	7	1,475
September	45	20	5	20	2,360
October	72	52	8	12	17,285
November	68	60	4	4	22,720
December	101	96	2	3	12,675
Totals	451	315	46	90	64,390
1914	557	409	41	116	111,890

MISCELLANEOUS.

1915.	Comp.	Oil.	Gas.	Dry.	Prod.
January	4	2	..	2	45
February	4	..	1	3	..
March	5	..	1	4	..
April	3	1	..	2	35
May	6	2	2	2	65
June	7	1	2	4	35
July	1	..	..	1	..
August	4	1	1	2	225
September	4	1	..	3	..
October	6	2	2	2	15
November	24	4	4	16	60
December	13	1	7	5	30
Totals	81	15	20	46	570
1914	30	16	2	12	318
1913	113	40	26	67	707

Mid-Continent Refineries.

There were forty-eight refineries in the mid-continent field at the beginning of 1915 and fifty-nine at its close, not counting the Standard Oil Company's plants. There were thirteen new refining plants constructed during the year, but the net gain was only nine, owing to the dismantling and discontinuance of five others. The total investment in mid-continent refineries at the opening of 1915 was $18,386,590 and at its close $22,006,761, a gain of $4,620,171 during the year. This does not represent the entire investment of refiners in producing properties and pipe lines. At the close of the year two new plants were under construction and a number of additional refineries were projected. The new factories built during the year were:—The Hutchinson Refining Company, Hutchinson, Kan.; Rosedale Refining Company, Rosedale, Kan.; Seeger Refining Company, East St. Louis, Ill.; St. Joseph Refining Company, St. Joseph, Mo.; Capital Refining Company, Oklahoma City, Okla.; Portland Refining Company, Okmulgee, Okla.; International Refining Company, Cushing, Okla.; Southern Oil Corporation and Webster Oil and Gasoline Company and Sun Refining Company, Yale, Okla.; North American Refining Company, Pemeta, Okla.; Crystal White Refining Company, Allen, Okla., Producers' Refining Company, Gainesville Tex. It will be noted that some of these refining plants are somewhat removed from the Oklahoma field, but they were built to handle Oklahoma and Kansas crude, and the location was governed by marketing considerations or freight rates.

During the year just closed the independent refiners used on an average, as nearly as can be estimated, 86,000 barrels of crude a day. At the close of the year refineries in this field using mid-continent crude, outside of the Standard, were consuming approximately 123,300 barrels a day. This is a big increase in the past three years, and shows the advance of the independent movement. A suggestion of the cause of this is found in the report of the Kansas oil inspector, which may be taken as typical of the Western States, and which shows that the independents marketed more gasoline and kerosene in that State last year than the Standard Oil Company did.

On January 1 1915, the mid-continent refiners owned and operated 5,179 tank cars; at its close they owned 5,894 cars, a gain of 715, and rented 635, a total of 6,521. They own and operate 1,401 distributing stations, a gain of 195.

Thirteen mid-continent refineries have lubricating plants in connection, and others are planning to add to this equipment the coming year. It is only a question of time until most of the Western refiners will also be making lubricants.

Twenty-seven refineries own 1,417 miles of pipe line, a gain of 340 miles during the year. There are 13,568 wells connected to independent lines, including the Gulf Pipe Line, the Texas Line and the refinery lines. Cosden & Co. own the largest mileage of independent refinery pipe lines. Cosden built a pipe line to Cushing, one to Boynton and other lines in 1915; the Milliken Refining Company built a line to Cushing from Vinita; the North American Refining Company built ten miles of line from Pemeta into the Cushing field; the Producers' Refining Company laid an 8-inch line from Healdton to Gainesville (a distance of forty-eight miles), where it built a 10,000-barrel refinery. Other minor lines were built by the refiners during the past year. Probably no set of independent refiners in the world is so well entrenched in all respects as are the Middle West refiners.

It Was a Year of Extremes and Progress.

The year 1915 was a year of progress for the mid-continent refiner, speaking of the industry as a whole. It was a year of extreme contrasts. It came in with prices at lowest ebb in the history of the business in this field and went out with the highest prices known. The year witnessed the greatest over-production of crude ever recorded, with its resultant oversupply of gasoline, and before it came to a close it also witnessed the record-breaking scramble for crude, resulting from a marked shortage. The beginning of the year found refiners abandoning the use of crude from other parts of the field for Cushing, and the close of the year saw these same refiners begging for crude wherever they could get it. Early in the year the refiner had his representatives out searching the highways and byways of the country for a market for his products, and the jobber sitting in lordly fashion in his easy chair, and now and then condescending to buy a car when the price, in his judgment, really hit bottom. In the latter part of the year the jobber himself was making frequent trips to the refiner and offering to pay cash and almost any old price if he could only get a supply. Truly, it is said the old game is one of innings. Last summer the refiner was making marginal contracts in his eagerness to dispose of his products; in December he was making contracts for premium oil and paying as high as 50 cents a barrel over the pipe line market.

Nineteen hundred and fifteen was a remarkable year. The writer has been preparing annual reports of this field from its beginning, and year after year he has been compelled to say "Last year was a year of superlatives; the largest in the history of the field," and each succeeding year has gone a step ahead of the preceding year, if not in all, at least in very essential points. No one dares predict what the coming year may produce. Already a number of new refineries are projected; existing plants will be enlarged, and many of the largest ones now will put in cracking plants in order to increase the amount of gasoline from crude. This will probably be the big growth in 1916. Already a number of cracking plants are being installed; at least two Western refiners have contracted for the Rittman process.

The mid-continent field now boasts of the largest number of refineries of any oil producing field in the world. It is turning out a greater amount of gasoline than any other field in the world, and it gives great promise of retaining this distinction. Two companies are now using 15,000 barrels a day and another company is to enlarge to that capacity the coming year. Some of these concerns have not been in the business over five years. Therefore the showing is quite remarkable. The Western refiner is a live wire and a builder. His refinery is a model of construction.

One of the big fights of the refining industry just now is against the proposed Federal revenue tax on crude, kerosene and gasoline. This would prove exceedingly annoying and expensive to the industry, as well as increase the cost of gasoline to the consumer about 3 to 5 cents a gallon. Some refiners in the mid-continent field would have to pay to the government as high as $900,000 a year, and this would have to be passed on to the consumer. Others it would cost $800,000 a year; others $500,000, $450,000 and down to $25,000 a year.

The following tables show the refining industry in the Middle West in detail:—

Mid-Continent Refineries and Their Investment.

KANSAS.

Name of company and year built.	Total investment.
Miller Pet. Ref. Co., Humboldt, 1906	$73,626
Kansas City Ref. Co., Kansas City, 1906	250,000
Eastern Kansas Oil Co., Moran, 1905	300,000
Chanute Ref. Co., Chanute, 1907	300,000
Kansas Co-operative Ref. Co., Chanute, 1906	200,000
Great Western Oil Ref. Co., Erie, 1906	754,000
Kansas Oil Refining Co., Coffeyville, 1906	300,000
*Niotaze Ref. Co., Niotaze, 1905	275,000
Cudahy Ref. Co., Coffeyville, 1908	1,400,000
National Ref. Co., Coffeyville, 1907	500,000
Uncle Sam Oil Co., Cherryvale, 1906	125,000
Petroleum Products Co., Independence, 1910	2,500,000
Kanotex Ref. Co., Caney, 1906	650,000
*Kansas Crude Oil Co., Chanute, 1909	12,000
Lesh Ref. Co., Arkansas City, 1914	30,000
Rollin Oil Ref., Rollin, 1908	20,000
Wichita Ref. Co., Wichita, 1914	10,000
Hutchinson Ref. Co., Hutchinson, 1915	5,000
Rosedale Ref. Co., Rosedale, 1915	25,000

OKLAHOMA.

Cudahy Ref. Co., Muskogee, 1905	$95,000
Muskogee Ref. Co., Muskogee, 1906	350,000
American Ref. Co., Okmulgee, 1906	583,100
Oklahoma Ref. Co., Oklahoma City, 1906	280,667
Uncle Sam Oil Co., Tulsa, 1906	50,000
Sapulpa Ref. Co., Sapulpa, 1908	749,907
Indiahoma Ref. Co., Okmulgee, 1910	1,258,000
Milliken Ref. Co., Vinita, 1910	1,300,000
Constantin Ref. Co., Tulsa, 1911	400,000
Webster Ref. Co., Coalton, 1911	15,000
Consumers' Ref. Co., Cushing, 1912	454,791
Consumers' Ref. Co., tank cars, 1913	300,000
Consumers' Ref. Co., pipe lines	100,000
Ponca Ref. Co., Ponca City, 1912	600,000
Cushing Ref. Co., Cushing, 1913	445,000
Cosden & Co., Tulsa, 1912	1,500,000
Cosden & Co., Cushing, 1911	100,000
Cosden & Co., Richmond, 1908	80,000
Consolidated Oil Ref. Co., Cleveland, 1913	100,000
Phœnix Ref. Co., Sand Springs, 1913	300,000
Pierce Oil Corporation, Sand Springs, 1913	600,000
Texas Company, Tulsa, 1913	1,200,000
Chanute Ref. Co., Cushing, 1914	600,000
Ardmore Ref. Co., Ardmore, 1914	100,000
Illinois Oil Ref. Co., Cushing, 1914	65,000
Peerless Oil Ref. Co., Cushing, 1914	600,000
Hillman Ref. Co., Cushing, 1914	12,000
Continental Ref. Co., Bristow, 1914	20,000
Webster Oil and Gasoline Co., Yale, 1915	17,030
International Ref. Co., Cushing, 1915	200,000
Sun Oil Co., Yale, 1915	100,000
North American Ref. Co., Pemeta, 1915	150,000
Capital Ref. Co., Oklahoma City, 1915	20,000
Crystal White Refining Co., Allen, 1915	10,000
Southern Oil Corporation, Yale, 1915	60,000
Portland Oil and Ref. Co., Okmulgee, 1915	10,000

OTHER STATES.

Indiahoma Ref. Co., East St. Louis, Ill., 1907	$100,000
Consolidated Oil Ref. Co., East St. Louis, Ill., 1909	50,000
Consolidated Oil Ref. Co., East St. Louis, Ill., 1915	35,000
Wilhoit Ref. Co., Joplin, Mo., 1913	120,000
St. Joseph Ref. Co., St. Joseph, Mo., 1915	15,000

Magnolia Pet. Co., Fort Worth, Tex., 1914	457,840
Producers' Ref. Co., Gainesville, Tex., 1915	683,000
Total investment	$22,006,761

* The Niotaze refinery has just been sold to Larabee Bros., millionaire millers of Kansas, and is being remodeled preparatory to resumption of operations.

Standard Oil Company Plants Using Mid-Continent Crude.

	Barrels daily.
Standard Oil Co., Neodesha, Kan.	7,500
Standard Oil Co., Sugar Creek, Mo.	12,500
Standard Oil Co., Baton Rouge, La.	12,000
Standard Oil Co., Wood River, Ill.	12,500
Standard Oil Co., Whiting, Ind.	30,000

New Plants Building.

Lawton Refining Company, Lawton, Okla., 250 barrels, $15,000.

Mid-Continent Refining Company, Boynton, Okla., 1,000 barrels, $40,000.

Planet Oil Company, plant proposed at Blackwell.

Pan-American Refining Company, site purchased at Tulsa.

Mutual Oil Company, Kansas City, has decided to build a refinery in the field.

Gain of nine operating refineries during 1915.

It will be noted that the Standard refineries in the West are not using as much crude as they formerly did. This is accounted for by the fact that the Burton process is now used in these factories, and while it is slower in operation a larger percentage of gasoline is obtained. The Neodesha plant formerly used 9,000 barrels of crude a day; now it uses about 7,500 barrels and will use 8,500 barrels after the twenty stills now under construction are completed. The Sugar Creek refinery formerly used from 17,000 to 20,000 barrels a day, whereas it now uses 12,500 barrels of crude a day. This plant is also installing many more Burton stills; in fact, the Standard Oil Company is erecting new Burton stills in all of its plants, both East and West. This system has undergone many improvements and changes, and is constantly in evolution. A less capable financial concern would have gone broke developing the system. But the Standard realizes it is going to be necessary in the future to get more gasoline from crude, and is taking time by the forelock. And yet it has been utterly unable this past three months to supply all of its own demands for gasoline. In the Burton process the crude is first run through the stills and the lighter products taken off; then the residuum is rerun and further refraction made, so that about 35 to 40 per cent. of gasoline is finally reduced. About 35 per cent. of kerosene is also obtained. It is believed before long this kerosene will also be rerun and about 25 per cent. of it will be converted into gasoline.

Crude Used by Refineries.

KANSAS.

Name of refinery—	Daily average crude oil used Jan. 1. Bbls. 1914.	Bbls. 1915.
Eastern Kansas Oil Co., Moran	400	160
Great Western Oil Ref. Co., Erie	1,000	500
*Niotaze Ref. Co., Niotaze	500	100
Kanotex Ref. Co., Caney	1,000	600
Kansas City Ref. Co., Kansas City	1,000	1,700
Kansas Co-operative Ref. Co., Chanute	500	500
Kansas Oil Ref. Co., Coffeyville	1,800	1,700
Miller Pet. Ref. Co., Coffeyville	350	400
Uncle Sam Oil Co., Cherryvale	400	400
Chanute Ref. Co., Chanute	1,750	2,000
National Ref. Co., Coffeyville	3,000	3,200
Cudahy Ref. Co., Coffeyville	3,000	4,000
Rollin Oil Refinery, Rollin	40	100
*Kansas Crude Oil Co., Chanute	...	...
Pet. Products Co., Independence	3,500	3,000
Lesh Refining Co., Arkansas City	500	300
Wichita Ref. Co., Wichita	100	350
Hutchinson Ref. Co., Hutchinson	...	150
Rosedale Ref. Co., Rosedale	...	1,000
OKLAHOMA.		
Cudahy Ref. Co., Muskogee	300	300
Muskogee Ref. Co., Muskogee	750	1,700
American Ref. Co., Okmulgee	1,500	1,500
Oklahoma Ref. Co., Oklahoma City	600	1,000
Uncle Sam Oil Co., Tulsa	500	600
Sapulpa Ref. Co., Sapulpa	2,000	3,000
Indiahoma Ref. Co., Okmulgee	1,200	3,000
Milliken Ref. Co., Vinita	4,000	9,000
Constantin Ref. Co., Tulsa	1,000	3,500
*Webster Ref. Co., Coalton	350	...
Consumers' Ref. Co., Cushing	4,500	4,500
Ponca Ref. Co., Ponca City	2,000	3,300
Cushing Ref. Co., Cushing	934	3,000
Cosden & Co., Tulsa	7,000	12,000
Cosden & Co., Bluebird	800	600
Cosden & Co., Cushing	1,000	1,800
Consolidated Oil Ref. Co., Cleveland	500	500
Phœnix Ref. Co., Sand Springs	1,000	2,000
Pierce Oil Corpn., Sand Springs	6,000	6,000
Texas Company, Tulsa	5,000	5,000
Chanute Ref. Co., Cushing	2,750	4,000
Ardmore Ref. Co., Ardmore	1,000	4,800
Illinois Oil Ref. Co., Cushing	1,000	1,000
Peerless Oil Ref. Co., Cushing	2,000	2,650
Hillman Ref. Co., Cushing	...	200
Continental Ref. Co., Bristow	200	125
†Webster Oil & Gasoline Co., Yale	...	500
International Ref. Co., Cushing	2,000	3,000
†North Amer. Ref. Co., Pemeta	...	1,000
†Crystal White Ref. Co., Allen	...	100
†Capital Ref. Co., Oklahoma City	...	125
†Southern Oil Ref. Co., Yale	...	2,000
Portland Oil and Ref. Co., Okmulgee	...	150
†Sun Oil Co., Yale	...	1,000
OTHER STATES.		
Indiahoma Ref. Co., East St. Louis, Ill.	700	700
Consolidated Oil Ref. Co., East St. Louis, Ill.	500	500
†Consolidated Oil Ref. Co., East St. Louis, Ill.	...	300
Wilhoit Ref. Co., Joplin, Mo.	500	700
†St. Joseph Ref. Co., St. Joseph, Mo.	...	200
Magnolia Pet. Ref. Co., Ft. Worth, Tex.	10,000	12,000
†Producers' Ref. Co., Gainesville, Tex.	...	8,000
Totals	...	123,300
Total for 1914	...	82,174
Total for 1913	...	55,345

* Not operating. †New Plant.

Refineries with Pipe Lines.

Name of company—	Miles of pipe line.
Eastern Kansas Oil Co., Moran, Kan.	3
Great Western Ref. Co., Erie, Kan.	24
Kanotex Refining Co., Caney, Kan.	43
Kansas Co-operative Ref. Co., Chanute, Kan.	7
Kansas Oil Ref. Co., Coffeyville, Kan.	60
Miller Pet. Ref. Co., Chanute, Kan.	7
Chanute Ref. Co., Chanute, Kan.	12
National Ref. Co., Coffeyville, Kan.	130
Cudahy Ref. Co., Coffeyville, Kan.	150
Petroleum Products Co., Independence, Kan.	170
Rollin Ref. Co., Rollin, Kan.	3
Muskogee Ref. Co., Muskogee, Okla.	32
Sapulpa Ref. Co., Sapulpa, Okla.	33
Indiahoma Ref. Co., Okmulgee, Okla.	80
Constantin Ref. Co., Tulsa, Okla.	21
Consumers' Ref. Co., Cushing, Okla.	118
Ponca Ref. Co., Ponca, Okla.	87
Cosden & Co., Tulsa, Okla.	215
Phoenix Ref. Co., Tulsa, Okla.	24
Pierce Oil Corporation, Sand Springs, Okla.	35
Chanute Ref. Co., Cushing, Okla.	115
Ardmore Ref. Co., Ardmore, Okla.	8
Webster Oil and Gasoline Co., Yale, Okla.	1
North American Ref. Co., Pemeta, Okla.	10
Crystal White Ref. Co., Allen, Okla.	3
American Ref. Co., Okmulgee, Okla.	20
Producers' Ref. Co., Gainesville, Tex.	48
Total	1,439
Total, 1915	1,077
Gain	362

Refineries Having Lubricating Plants.

Great Western Oil Refining Company, Erie, Kan.

Kansas City Refining Company, Kansas City, Kan.

Kansas Co-operative Refining Company, Chanute, Kan.

National Refining Company, Coffeyville, Kan.

Cuhady Refining Company, Coffeyville, Kan.

Petroleum Products Company, Independence, Kan.

Muskogee Refining Company, Muskogee, Okla.

American Refining Company, Okmulgee, Okla.

Milliken Refining Company, Vinita, Okla.

Consumers' Refining Company, Cushing, Okla. (building).

Ponca Refining Company, Ponca City, Okla.

Cosden & Co., Tulsa, Okla.

Magnolia Petroleum Company, Fort Worth, Tex.

The Webster Oil and Gasoline Company is preparing to put in a lubricating plant.

Refining Companies Having Distributing Stations.

Name of company—	Number stations.
Great Western Oil Ref. Co., Erie, Kan.	38
Kanotex Ref. Co., Caney, Kan.	27
Kansas Co-operative Ref. Co., Chanute, Kan.	20
Kansas Oil Ref. Co., Coffeyville, Kan.	20
Miller Pet. Ref. Co., Chanute, Kan.	14
Chanute Ref. Co., Chanute, Kan.	40
National Ref. Co., Coffeyville, Kan.	50
Cudahy Ref. Co., Coffeyville, Kan.	224
Oklahoma Ref. Co., Oklahoma City, Okla.	50
Indiahoma Ref. Co., Okmulgee, Okla.	4
Cosden & Co., Tulsa, Okla.	1
Pierce Oil Co. Corp., Sand Springs, Okla.	400
Consumers' Ref. Co., Cushing, Okla.	45
Magnolia Pet. Co., Fort Worth, Tex.	435
Wilhoit Ref. Co., Joplin, Mo.	33
Total	1,401
Total, 1915	1,206
Gain	195

Mid-Continent Tank Cars.

	No. cars owned 1915.	No. cars rented.
Eastern Kansas Oil Co., Moran, Kan.	20	..
Great Western Ref. Co., Erie, Kan.	60	..
Kanotex Ref. Co., Caney, Kan.	37	..
Kansas City Ref. Co., Kansas City, Kan.	66	..
Kansas Co-operative Ref. Co., Chanute, Kan.	30	4
Kansas Oil Ref. Co., Coffeyville, Kan.	100	6
Miller Pet. Ref. Co., Chanute, Kan.	25	10
Uncle Sam Ref. Co., Cherryvale, Kan.	56	..
Chanute Ref. Co., Chanute, Kan.	100	6
National Ref. Co., Coffeyville, Kan	315	..
Cudahy Ref. Co., Coffeyville, Kan.	342	..
Petroleum Prod. Co., Independence, Kan.	200	..
Lesh Ref. Co., Arkansas City, Kan.	15	..
Wichita Ref. Co., Wichita, Kan.	..	2
Rosedale Ref. Co., Rosedale, Kan.	10	..
Muskogee Ref. Co., Muskogee, Okla.	65	..
American Ref. Co., Okmulgee, Okla.	130	7
Oklahoma Ref. Co., Okla City, Okla.	50	..
Uncle Sam Oil Co., Tulsa, Okla.	32	..
Sapulpa Ref. Co., Sapulpa, Okla.	85	..
Indiahoma Ref. Co., Okmulgee, Okla.	125	250
Milliken Ref. Co., Vinita, Okla.	420	..
Constantin Ref. Co., Tulsa, Okla.	98	..
Consumers' Ref. Co., Cushing, Okla.	315	..
Ponca Ref. Co., Ponca City, Okla.	140	..
Cushing Ref. Co., Cushing, Okla.	150	..
Cosden & Co., Tulsa, Okla.	560	2
Consolidated Ref. Co., Cleveland, Okla.	20	..
Phœnix Ref. Co., Tulsa, Okla.	25	50
Pierce Oil Corp., Sand Spgs., Okla.	450	..
Chanute Ref. Co., Cushing, Okla.	200	6
Texas Co., Tulsa, Okla.	378	..
Illinois Ref. Co., Cushing, Okla.	20	35
Peerless Ref. Co., Cushing, Okla.	150	..
Hillman Ref. Co., Cushing, Okla.	..	8
Continental Ref. Co., Bristow, Okla.	15	..
Webster Oil and Gasoline Co., Yale, Okla.	..	14
International Ref. Co., Cushing, Okla.	225	25
North American Ref. Co., Pemeta, Okla.	20	..
Capital Ref. Co., Oklahoma City, Okla.	..	4
Riverside Western Oil Co., Tulsa, Okla.	90	..
D. W. Franchot & Co., Tulsa, Okla.	12	..
Crystal White Ref. Co., Allen, Okla.	3	..
Wilhoit Ref. Co., Joplin, Mo.	35	..
St. Joseph Ref. Co., St. Joseph, Mo.	..	6
Magnolia Pet. Co., Fort Worth, Tex.	586	175
Producers Ref. Co., Gainesville, Tex.	220	..
Total	5,894	635
Total, 1915	5,179	..
Gain	715	..

Refineries Having or Putting in Cracking Processes.

Cosden & Co.:—Cosden process.

North American Refining Company:—Parker process.

Consolidated Oil Refining Company, Cleveland, Okla.:—Greenstreet process.

Great Western Oil Refining Company, Erie, Kan.:—Keeley process.

Consolidated Oil Refining Company, East St. Louis, Mo.:—Wasburn-Seeger process.

Rosedale Refining Company, Rosedale, Kan.:—Well process (contract owned).

Milliken Refining Company expended $25,000 on cracking process.

Muskogee Refining Company and Indiahoma Refining Company and several others are contemplating putting in "cracking" plants.

Refinery Notes.

The Millikin Refining Company is installing a lubricating plant in connection with its refinery at Vinita, Okla., and is building eight new stills. It will then have a daily capacity of 15,000 barrels.

The Consumers' Refining Company is building a lubricating plant at Cushing and putting up two new stills, increasing the capacity about 2,000 barrels a day.

The Oklahoma Refining Company will double its capacity during the coming year.

The Wichita Refining Company, under the personal direction of Manager Beach, a new man in the game, is prospering and it is proposed to very materially increase the output the coming year, by the additon of new stills and other equipment. The company is now endeavoring to develop, by drilling in the Eldorado field, its own supply of crude.

The North American Refining Company, with a plant at Pemeta, Cushing district, is putting in a cracking plant and expects to increase its capacity by about 100 per cent. the coming year.

The Great Western Refining Company, whose plant at Erie, Kan., has been shut down the greater part of the time the past few months, has just completed a cracking plant for the use of the Kelsey process. The management makes large claims for its process and is expecting splendid results in increasing the amount of gasoline from crude.

The Pan-American Refining Company has purchased an 80-acre tract of land at Tulsa and will erect thereon a new refinery.

The Planet Oil Refining Company contemplates erecting at once a 1,000-barrel plant at Blackewll. Another refinery is promised for Augusta, Kan.

The Ardmore Refining Company, since the statistics in this report were made up, has increased its capacity to 4,800 barrels a day. Nearly all of the mid-continent refineries are running more oil than they have ever run before and still they are unable to meet the demand for gasoline. There is a better market right now for kerosene than there has been.

There is about 50,000,000 gallons of kerosene in refinery storage in the mid-continent field.

It is estimated jobbers in the Middle West have enough gasoline in their storage tanks to keep them going for three months. They are concerned mostly about a supply for next summer.

The Mutual Oil Company, jobbers, Kansas City, has determined upon the construction of a refinery to manufacture its own products.

Refiners have taken long strides as producers and storage owners in this field the past year.

Makers of Refined Prices.

The following tables are of special interest. They show the fluctuations of gasoline retail prices at Kansas City, a typical point, and indicate how the independents for the first time in the history of the business made their own prices irrespective of the big companies and leading the Standard. They had led the market down; they owned their ability to lead it up. It was a remarkable exhibition:—

KANSAS CITY MARKET.

Date.	Gasoline gallons. Cents. Independent.	Cents. Standard.
January 1, 1913	...	15.5
October, 1913	...	14.0
March, 1914	13.5	12.5
June 17, 1914	10.8	10.8
February 6, 1915	14.0	...
22, 1915	9.8	9.8
June 10, 1915	8.8	8.8
September 1, 1915	9.8	...
15, 1915	...	9.8
23, 1915	10.8	...
29, 1915	...	10.8
October 21, 1915	11.8	...
25, 1915	...	11.8
November 2, 1915	12.8	...
15, 1915	...	12.8
17, 1915	13.8	...
22, 1915	...	13.8
30, 1915	14.8	...
December 13, 1915	...	14.8
21, 1915	15.8	...
30, 1915	...	15.8

The following table shows the changes in tank wagon prices at the refinery, and is an illuminating study:—

Fluctuation of Reported Prices in 1915.

	Grade of product—68-70 gasoline. Cents per gal.	64-65 gasoline. Cents per gal.	60-61 gasoline. Cents per gal.
December, 1914	.10	.08	6.75
1915—			
January 25	9.25	7.25	6.50
February 25	9.00	7.00	6.00
April 15	8.75	7.00	6.00
August 5	9.50	7.50	6.50
August 17	10.00	8.00	7.00
August 21	10.50	8.50	7.50
September 12	11½	9¼	8½
September 22	12.00	10.00	9.00
October 9	13.00	11½	10½
October 15	13½	12.00	11.00
November 10	15.00	13.00	11½
November 16	15½	13½	12.00
November 29	16.00	14.00	12½
December 10	17.00	14½	13.00
December 15	17.50	15½	14.00
December 24	18.00	16.00	14½
December 28	18.00	16.00	15.00

	Grade of product—58-59 naphtha. Cents per gal.	42-43 kerosene. Cents per gal.	Fuel oil. Cents per bbl.
December, 1914	6.50	2.00	35.00
1915—			
January 25	6.25	1.75	35.00
February 25	5.50	1.75	35.00
April 15	5.5	1.50	30.00
August 5	6.00	2.00	42.00
August 17	6.50	2.00	50.00
August 21	7.00	2¼	75.00
September 12	8.00	2½	75.00
September 22	8½	2¾	75.00
October 9	9½	3.00	75.00
October 15	10.00	3.00	75.00
November 10	10½	3¼	75.00
November 16	11½	3½	75.00
November 29	12.00	3½	75.00
December 10	12½	3½	80.00
December 15	13.00	3¾	85.00
December 24	13½	3¾	90.00
December 28	14.00	3¾	90.00

At close of year refiners were being freely offered 16c. to 16.5c. a gallon for 60-61 gasoline at the refinery.

Comparison of Figures in Production and Price.

The following table, the first of its kind ever made in this field, shows the rise and fall of production and the action of prices under different conditions. For instance, while production was increasing in 1914, the price of crude and gasoline decreased; while an entirely different result followed as production increased in the fall of 1915. With production at 258,000 barrels in October, 1915, the posted price of crude was 80 cents and gasoline 11.5 cents; yet by December production had increased to 280,000 barrels and the crude market had advanced to $1.20 a barrel, with 40 to 50 cents premium for Cushing oil, and gasoline was commanding 15 cents, refinery quotation, and offer as high as 16.5 cents. In the one instance there was an overproduction of gasoline and the other a shortage. Prices are very largely governed now by the supply and demand of gasoline. Attention is called to the following significant table:—

	Estimated daily production crude mid-continent. Barrel.	Market price of crude. Barrel.	Price of gasoline f. o. b. refinery. Gallon.
1914—			
January	196,000	$1.05	$0.11
April 8	206,000	1.00	.10½
April 29	222,000	.75	..
September 22	346,000	.65	.07
October 1	337,000	.55	..
1915—			
January 1	385,000	.55	.06½
February 8	365,000	.45	..
February 15	335,000	.40	..
April	343,000	..	.06
May	400,000	..	..
July	300,000	..	..
August 2	295,000	.50	..
August 4	295,000	.55	..
August 5	....	..	.06½
August 11	290,000	.60	..
August 17	285,000	..	.07
August 19	283,000	.65	..
August 21	280,000	.75	.07½
September 11	278,000	.80	..
September 12	....	..	.08½
September 22	....	..	.09
October 9	260,000	..	.10½
October 15	258,000	..	.11
November 10	260,000	..	.11½
November 13	262,000	.90	..
November 15	265,000	1.00	..
November 16	....	..	.12
November 29	270,000	..	.12½
December 10	....	..	.13
December 13	275,000	1.10	..
December 14	....	1.20	..
December 15	278,000	..	.14
December 24	....	..	.14½
December 28	280,000	..	.15

Kansas State Inspection.

1914—	Barrels—Kerosine.	Gasoline.	Fees received.	Net to State.
Dec.	37,283	34,115	$7,139.85	$6,078.03
1915—				
Jan.	39,606	28,939	6,863.49	5,828.74
Feb.	36,559	23,560	6,012.80	4,984.44
Mar.	41,321	20,726	6,204.70	5,145.71
Apr.	51,052	54,653	10,573.20	9,497.24
May	47,045	55,852	10,286.70	9,257.20
June	48,691	55,720	10,441.10	9,467.42
July	56,296	70,459	12,675.95	11,650.04
Aug.	61,164	71,299	13,246.30	12,210.64
Sept.	55,944	83,020	13,896.40	12,846.10
Oct.	71,137	62,999	13,413.60	12,367.15
Nov.	85,409	70,100	12,550.90	11,465.57
Totals	601,599	631,481	$123,308.29	$110,798.37
1914	440,776	465,686	89,990.42	76,665.68
1913	419,943	414,235	80,240.13	48,536.42
1912	272,417	298,531	68,934.99	38,189.95

RECAPITULATION.

Total amount of fees collected	$123,308.29
Total amount net to State	110,798.37
Barrels of oil inspected	601,599
Barrels of gas inspected	631,481
Totals (plus)	1,233,080

About $100,000 of fees was paid last year under protest. Constitutionality of inspection law will be decided by State Supreme Court in February. New inspection law providing for 6 cents a barrel on gasoline was passed by last Legislature and vetoed by the governor. The new law would have produced $36,888.86 last year; cost of inspection, $12,505.92; net to State, $24,378.94. Even this sum is so far in excess of the cost of the inspection as to have constituted the new law unconstitutional. The State is now attempting to increase cost of inspection by demanding additional inspectors.

The independents sold more kerosene and gasoline in Kansas in 1915 than the Standard did, as is shown by the following table:—

Standard Oil Company Inspection.

1914—	Fees.	Barrels.
December	$3,405.80	34,068
1915—		
January	3,384.20	33,842
February	3,059.30	30,593
March	3,205.20	32,052
April	5,249.90	52,499
May	5,223.50	52,235
June	4,918.90	49,189
July	6,514.00	65,140
August	6,757.20	67,572
September	6,808.70	68,087
October	7,105.60	71,056
November	6,921.60	69,216
Totals	$59,373.50	593,735

Independent Oil Companies' Inspection.

1914—	Fees.	Barrels.
December	$4,071.30	40,713
1915—		
January	3,937.60	39,376
February	2,454.00	24,540
March	3,791.60	37,916
April	5,979.90	59,799
May	5,734.50	57,433
June	5,935.20	59,552
July	6,946.20	69,462
August	7,201.40	72,014
September	7,708.20	77,082
October	7,168.70	71,687
November	6,176.30	61,763
Totals	$63,933.50	639,335

Oklahoma Oil Inspection.

1915.	Bbls. Oil@4c.	Bbls. Oil@10c.	Bbls. Oil@15c.
January	....	21,061	65
February	.....	19,907	587
March	13,766	10,651	80
April	18,479	123	....
May	19,904	108	....
June	21,844	376	....
July	19,590	278	....
August	23,877	879	....
September	25,287	593	....
October	23,872	518	....
November	21,872	681	....
December	26,161	892	....
Total	214,652	56,127	732

1915.	Bbls. Gas@4c.	Bbls. Gas@10c.	Bbls. Gas@15c.	Fee.
January	....	11,143	33	$3,235.10
February	....	15,005	215	3,617.50
March	8,150	4,307	214	2,416.54
April	1,384	47	....	1,367.16
May	19,984	142	....	1,620.52
June	23,717	359	....	1,895.94
July	28,138	466	....	1,976.92
August	28,752	541	....	2,247.16
September	20,802	1,150	....	2,377.86
October	28,087	870	....	2,217.16
November	25,276	787	....	2,027.68
December	27,103	1,165	....	2,336.26
Total	234,283	35,886	462	$27,335.80

As will be observed in the above table, a new law in Oklahoma reducing the inspection fee on kerosene and gasoline from 10c. to 4c. a gallon in tank cars and continuing the 10c. rate on inspections in barrel lots went into effect in March, 1915. So that after March 4c. a barrel on both gasoline and kerosene was the prevailing inspection fee. In 1915 there was a gain of 60,374 barrels of kerosene inspected in Oklahoma, as against the inspection in 1914, and a gain of 96,793 barrels of gasoline, as compared with 1914. So that in spite of the fact that the inspection fee was reduced from 10c. to 4c., the State lost only $2,424.29 in 1915, as compared with 1914. In 1914 there was a total of 211,137 barrels of kerosene inspected, as compared with 271,511 barrels of kerosene inspected in 1915. In 1914 there were 173,858 barrels of gasoline inspected in Oklahoma, as compared with 270,651 barrels of gasoline in 1915. The total inspection fees in 1914 were $29,760.69 and in 1915, $27,335.80. Since the cost of inspection is less than $9,000 a year and since it is still a principle of law that no inspection fee shall be in excess of the cost of the same, it would seem that the law in Oklahoma, in spite of the reduction in the fee, is just as unconstitutional as it was in 1914. In the State of Nebraska the inspection law on this same ground has recently been declared unconstitutional, and the constitutionality of a similar law in Kansas will be decided by the Supreme Court in February. It is stated that the oil inspection fees are used in Oklahoma to pay the expenses of maintaining a guardianship over coal and other mining in that State. There is a probability that the constitutionality of the law in Oklahoma will be tested in the courts.

Less Natural Gas Produced in 1915.

There was less natural gas produced in 1915, or rather new wells tested less than those drilled in 1914. The flow of wells drilled in 1914 was estimated at 3,525,403,000 cubic feet, as compared with 2,143,975,000 cubic feet in 1915, a loss of 1,381,428,000 cubic feet a day. This was partly accounted for by the fact that in 1914 839 gas wells were drilled and in 1915 only 731 wells. The 731 wells drilled last year averaged approximately 2,934,000 cubic feet each. Last year 344 gas wells, testing 408,675,000 cubic feet a day, were drilled in Kansas, and 387 wells, testing 1,735,300,000 cubic feet, were drilled in Oklahoma. Kansas gas production is much more valuable than Oklahoma gas, the supply being smaller and the wells nearer large consumption, commands 6 cents to 10 cents a thousand feet, while in Oklahoma the reverse being true, gas commands only 2 cents to 3.5 cents a thousand cubic feet at the well. A great deal of gas was mudded off by the new government process, and is shut in for future use. Natural gas is much more carefully conserved than formerly.

The number of domestic consumers of natural gas is rapidly increasing in the mid-continent territory. In spite of all the troubles of the Kansas Natural Gas Company, the number of its consumers has increased from 142,767 to 151,269. People prefer gas to coal, even with the annoyance of shortage in cold weather. The Wichita Natural Gas Company, Oklahoma Natural Gas Company, Coney River Gas Company and Onapaw Gas Company all report substantial gains. There are now approximately 235,500 consumers of Kansas and Oklahoma natural gas.

The following tables show the development of natural gas in Kansas and Oklahoma the past two years:—

Gas Developed in Kansas—1915.

	Cubic feet.
January	26,000,000
February	76,500,000
March	3,700,000
April	16,500,000
May	12,250,000
June	14,300,000
July	68,625,000
August	40,000,000
September	47,500,000
October	10,300,000
November	56,350,000
December	36,650,000
Total, 1915	408,675,000
Total, 1914	451,582,000

	Cubic feet—	
By counties—	1914.	1915.
Montgomery	142,782,006	94,200,000
Chautauqua	111,200,000	29,550,000
Wilson	22,000,000	5,400,000
Neosho	21,400,000	44,150,000
Allen	9,272,000	14,450,000
Franklin	51,300,000	16,150,000
Miami	6,983,000	3,575,000
Butler	56,945,000	125,600,000
Labette	30,000,000	3,125,000
Cowley	.....	13,200,000
Woodson	.....	50,253,000
Sumner	.....	5,100,000
Elk	.....	2,500,000
Greenwood	.....	1,360,000
Totals	451,582,000	408,675,000

Gas Developed in Oklahoma—1915.*

	Cubic feet.
January	130,000,000
February	125,500,000
March	110,000,000
April	95,500,000
May	180,000,000
August	59,100,000
September	150,150,000
October	175,400,000
November	281,500,000
December	300,500,000
Total, 1915	1,735,300,000
Total, 1914	3,073,821,000

	Cubic feet—	
By districts—	1914.	1915.
Cherokee	790,521,000	173,000,000
Osage	301,600,000	78,500,000
Cleveland	24,300,000	30,100,000
Cushing	722,000,000	190,000,000
Creek	1,187,200,000	815,150,000
Kay	17,300,000	165,100,000
Southern Oklahoma	30,200,000	273,350,000
Miscellaneous	3,600,000	70,000,000
Totals	3,073,821,000	1,735,300,000
Kansas	344	408,675,000
Total 1915.	Wells drilled.	Cubic feet.
Kansas	344	408,675,000
Oklahoma	387	1,735,300,000
Total	731	2,143,975,000
1914	839	3,525,403,000

Facts About the Prairie.

Is erecting a $250,000 office building for its exclusive use in Independence, Kan.; to be completed June, 1916. Will have 20 per cent. expansion office space.

Is drawing upon stocks at rate of 33,000 barrels a day. At rate of decrease past two months its reserve supply would last only about three years.

The Prairie Oil and Gas Company separated its pipe lines and property incident to transportation of oil, main and gathering lines and pumping stations from its stock of crude and producing properties by turning the former over to the Prairie Pipe Line Company, organized for that purpose, and capitalized for $27,000. W. F. Gates is president of the new company. J. E. O'Neil continues as president of the Prairie Oil and Gas Company. The stock of the P. O. & G. recently has advanced from $247 to $464 a share; P. P. L. from $135 to $256, or $720 for its combined stock; $612 was the highest point reached by the Prairie Oil and Gas stock prior to the segregation, February 1, 1915.

The Prairie Oil and Gas Company has 1,400 employes and the Prairie Pipe Line Company 1,512. The segregation increased materially the number of employes.

The Prairie Oil and Gas Company in summer of 1915 purchased seventy-two 55,000-barrel tanks full of Cushing oil from White & Sinclair.

United States Indian Agency.

During the fiscal year 1915, 1,950 oil and gas leases were filed at the office of the superintendent of the Union Indian Agency at Muskogee. There were also 834 assignments filed. The following table shows the status of lease work at the close of the fiscal year 1915:—

Oil and gas leases filed		31,300
Oil and gas leases approved and in effect	5,115	
Oil and gas leases surrendered or canceled by department after approval	12,187	
Oil and gas leases canceled by agreement after approval	226	
Oil and gas leases expired	484	
Oil and gas leases removed from departmental supervision after approval	4,640	
Oil and gas leases withdrawn or disapproved	6,978	
Oil and gas leases canceled for failure to refile	537	
Oil and gas leases returned to lessee—no jurisdiction	121	
Oil and gas leases pending at department	190	
Oil and gas leases pending	822	
		31,300

The above shows that at the end of the fiscal year 1914 there had been surrendered or canceled by the department after approval 9,048 leases, while during the fiscal year 1915 there had been canceled 12,478 leases, making a total of 3,430 leases canceled during the past year, while only 1,443 leases were submitted for departmental consideration and action. This leaves approved and in effect 5,115 oil and gas leases, showing a considerable decrease for the year. This was due no doubt to the fact that, while Cushing was at its height, operations in all the rest of Oklahoma were practically at a standstill.

The table appended below shows royalty receipts received by the Union Indiana Agency on behalf of Indian landholders on account of oil and gas from 1904 to 1915 inclusive. While 14,527,673 more barrels of oil were marketed from departmental leases during the fiscal year 915 than the fiscal year 1914, the royalty interest therein was only $88,474.98 in excess of that of the previous year. At the beginning of the fiscal year the prevailing market price of crude was 75 cents a barrel, which afterward went down to 40 cents through Oklahoma, except in the Healdton district, where it was 30 cents, which accounted for the smaller royalty income to the Indian.

During the fiscal year 1915, eighteen oil companies availed themselves of the permission granted to remove and store oil off the leased premises on account of the rapid development of the Cushing field and the impossibility to obtain facilities for transporting the oil. This oil was adequately protected by fire insurance. The following table shows the amount of oil removed from departmental leases and run into storage during the fiscal year ending June 30, 1915, the amount removed from storage during the fiscal year ending June 30, 1915, the amount removed from storage and sold, and the total number of barrels remaining in storage, one-eighth interest in the proceeds of which when sold is the property of the Indian lessor.

	Barrels.
Oil run into storage	14,699,044.24
Oil removed from storage	10,549,935.28
Oil remaining in storage	4,149,108.96

RECEIPTS ON ACCOUNT OF OIL AND GAS, 1904 TO 1915.

Fiscal year.	Receipts.
1904	$1,300.00
1905	91,624.40
1906	323,555.40
1907	775,489.15
1908	1,092,627.55
1909	1,813,460.28
1910	1,420,894.97
1911	1,365,826.52
1912	1,134,432.34
1913	1,496,179.31
1914	2,059,826.14
1915	1,953,055.37
Total	$14,128,271.43

The following table shows receipts from oil sources at the Union Indian Agency at Muskogee during the fiscal year 1915:—

Creek—Pipe line damages, tribal lines	$33.85
Individual Indiana royalties, oil and gas leases	1,044,775.03
Dacrages pipe lines	10,657.35
Proceeds from oil and gas leases	870,555.89
Filing fees, oil and gas leases, etc.	11,755.50
Pipe line inspection fees	785.00
Total	$1,938,562.62

Casing-Head Gasoline Plants in Mid-Continent Field.

Company—Location.	Raw product, gallons.
Chestnutt & Smith, Glenn pool, Oklahoma	15,000
Oklahoma Petroleum and Gasoline Co., Glenn pool, Oklahoma	5,000
Burns & Bradley, Glenn pool, Oklahoma	2,000
Tulsa Gasoline Co., Glenn pool, Oklahoma	750
Hull-McCune Co., Glenn pool, Oklahoma	2,000
Chestnutt & Smith, Muskogee, Okla.	900
Oklahoma Natural Gas Co., Muskogee, Okla.	1,000
Motor Gasoline Co., Muskogee, Okla.	600
Chestnutt & Smith, Hamilton Switch, Okla.	900
Henderson Gasoline Co., Delaware, Okla.	4,000
Riverside Western Oil Co., Delaware, Okla.	3,000
Diamond Gas Co., Delaware, Okla.	1,000
June Gasoline Co., Delaware, Okla.	500
Gypsy Oil Co., Kiefer, Okla.	5,000
Quaker Oil Co., Kiefer, Okla.	1,500
Franchot & Co., Kiefer, Okla.	1,200
McJunkin & Co., Kiefer, Okla.	150
Franchot & Co., Kiefer, Okla.	5,000
Riverside Western Oil Co., Okmulgee, Okla.	200
Chicago Petroleum Products Co., Morris, Okla.	800
Cushing Gasoline Co., Cushing, Okla.	900
C. B. Shaffer, Cushing, Okla.	500
Continental Compressing Co., Lenapah, Okla.	150
Arkansas Oil Co., Tulsa, Okla.	150
Whiteturkey Oil Co., Dewey, Okla.	100
Golden Gasoline Co., Bartlesville, Okla.	1,100
Akin Oil Co., Bartlesville, Okla.	1,500
Total	54,900

LOUISIANA PETROLEUM REVIEW.
Production of Crude Oil in 1915.

	Barrels.
Caddo, light	5,890,845
Caddy, heavy	942,064
Red River-DeSoto	8,693,322
Edgerly	1,320,527
Jennings	310,413
Vinton	1,180,750
Miscellaneous	72,000
Totals	18,379,921
Totals, 1914	14,309,435
Difference	4,070,486

Compilations from pipe line runs of the principal districts in Louisiana and careful estimates from other sections place the total quantity of crude petroleum produced in Louisiana in 1915 at 18,379,921 barrels. This was a gain of 4,070,486 barrels over the quantity produced in 1914. Northwestern Louisiana produced 15,496,231 barrels, and Southern Louisiana—Jennings, Edgerly, Vinton, Anse la Butte and Welsh—2,883,690 barrels. The table above gives the production of the different districts. For the monthly production of Edgerly, Jennings and Vinton see table in Gulf coast review. Below are the pipe line runs of crude in Northwestern Louisiana in the different districts, by months, in the year 1915, but they do not include 800,000 barrels of Caddo crude and 140,000 barrels De Soto and Red River crude run to independent refineries and shipped by smaller concerns other than the Standard Oil Company of Louisiana, the Texas Company and the Gulf Refining Company.

Production of Northwestern Louisiana, Including Northeastern Texas, for 1915, by Months.

	*Caddo, light.	Caddo, heavy.	Red River.	Total.
Jan.	481,526	109,432	254,317	845,275
Feb.	447,298	103,627	369,254	920,179
March	467,214	92,366	501,872	1,061,452
April	439,729	89,116	622,340	1,151,194
May	432,823	85,468	705,964	1,224,255
June	429,843	81,619	811,546	1,323,008
July	474,817	74,389	962,587	1,511,793
August	414,734	65,086	1,001,343	1,481,163
Sept.	435,212	59,385	971,492	1,466,089
Oct.	418,657	61,416	810,593	1,290,666
Nov.	462,244	59,583	782,619	1,244,446
Dec.	391,250	60,577	759,386	1,211,193
Totals	*5,235,327	942,064	8,553,322	14,730,713

*Includes 174,482 barrels produced in Marion county, Texas.

No new fields were discovered in Louisiana in 1915. Caddo production held steadily throughout the year, and the big increase came from the sensational development in Red River parish, mostly from the Crichton district. There was more wildcatting in 1915 than in any previous year in the history of the oil industry in Louisiana, but nothing of value was developed in the production of oil, although some good gas territory was developed near Shreveport, and also in De Soto and Red River parishes.

Credit balance quotations reached the low point of 60c. a barrel for Caddo light, and 35c. a barrel for Caddo heavy in July. In August the prices began to increase, and at the close of 1915 all lighter grades were bringing $1.20 and Caddo heavy at 80c. a barrel.

Considerable pipe line work was done in 1915. The Standard of Louisiana practically doubled its 8-inch line from the Arkansas State line to its refinery at Baton Rouge. It also put in several new pump stations and increased the capacity of others. Its plant at Baton Rouge now has a capacity of 20,000 barrels daily. The Louisiana Oil Refining Company has laid a new pipe line from its refinery at Gas Center to Cedar Grove, 39 miles, to connect with the Red River Pipe Line Company from Cedar Grove to the Crichton field, a distance of 40 miles. The Red River Pipe Line Company's new line was about ready to start running at the close of the year.

The following table is a summary of drilling operations in all districts in Northwestern Louisiana in 1915:—

Northwestern Louisiana.*

District.	Oil.	Gas.	Dry.	Tot.	New production.
Red River	297	10	27	334	183,418
De Soto	50	10	22	82	8,214
Mooringsport	5	..	2	7	140
Oil City	10	..	2	12	925
Jeems Bayou	9	..	2	11	1,210
Monterey	34	..	13	47	9,320
Hosston	8	..	2	10	380
Hart's Ferry	10	..	2	12	1,912
Lewis	12	..	2	14	345
Shreveport	11	6	5	22	...
N. E. Texas	16	..	5	21	1,440
Miscellaneous	2	9	12	23	95
Totals	464	35	96	595	207,399
Totals, 1914	448	47	89	584	104,663
Difference	16	12	7	11	102,736

* Gulf Coast fields in Louisiana found in Gulf Coast table in Texas review.

TEXAS PETROLEUM REVIEW.

Production of crude petroleum in all Gulf coast districts in 1915 totaled 20,310,472 barrels. This is an increase of 7,192,944 barrels when compared with the record of 1914, when the total quantity was 13,117,528 barrels. Practically all the increase came from Humble. Edgerly had a slight increase, and Sour Lake fell off over a million barrels. No new fields were discovered in the coastal region in 1915, although West Columbia and Brazoria and Damon Mound, in the same county, and Davis Hill, in Liberty county, were being closely watched at the close of the year as likely to develop into producing territory.

The new field in Williamson county, near Thrall, Tex., produced about 1,000,000 barrels of 42 gravity oil. It is properly in the Gulf coast region geographically, but geologically it is in the North Texas territory, or more properly, in the Corsicana classification. Corsicana, Thrall, Strawn and Moran are all in the same horizon and should properly be classed as Central Texas.

In the tables below will be found the production of the different districts by months for 1915, together with the annual production of each district for 1914:—

Month.	Batson.	Edgerly.	Goose Creek.
January	61,482	83,419	14,208
February	55,374	93,728	11,324
March	56,217	87,367	16,892
April	60,822	118,546	10,780
May	59,426	89,982	9,206
June	57,812	109,314	8,801
July	54,819	138,003	8,423
August	51,306	112,315	9 242
September	49,823	110,815	6,328
October	58,611	151,489	6,914
November	52,380	123,618	6,388
December	50,915	110,332	11,311
Totals	668,987	1,320,527	122,817
Totals, 1914	775,804	586,376	134,748

Month.	Humble.	Markham.	Jennings.
January	343,214	10,315	26,627
February	595,703	10,402	23,118
March	604,592	10,184	23,744
April	591,218	10,963	22,211
May	470,675	10,658	22,594
June	578,336	11,802	26,812
July	844,611	10,512	24,324
August	760,358	8,644	24,918
September	1,246,392	11,418	26,466
October	1,554,201	9,301	29,114
November	2,055,817	8,216	29,328
December	1,431,803	15,355	30,202
Totals	11,080,170	127,770	310,413
Totals, 1914	2,799,458	.....	412,036

Month.	Saratoga.	Sour Lake.	Spindletop.
January	70,333	394,218	40,428
February	68,817	340,634	35,321
March	69,318	362,291	37,632
April	68,521	365,382	39,327
May	60,435	366,426	35,815
June	68,249	310,804	30,207
July	66,416	314,292	24,012
August	65,926	302,463	31,398
September	63,434	298,852	26,083
October	62,752	321,574	30,366
November	60,184	358,216	26,388
December	59,387	431,917	28,934
Totals	783,003	4,167,059	386,511
Totals, 1914	880,745	5,269,208	580,130

Month.	Vinton.	Others.*	Total.
January	101,527	13,865	1,159,436
February	126,218	11,520	1,371,833
March	150,356	13,865	1,412,458
April	121,584	13,450	1,425,904
May	86,892	13,865	1,225,929
June	85,835	13,450	1,290,487
July	85,717	13,865	1,585,504
August	88,395	13,865	1,468,802
September	84,742	13,450	1,938,392
October	78,014	13,865	2,315,861
November	75,219	13,450	2,815,204
December	118,461	13,865	2,302,572
Totals	1,180,750	162,375	20,310,472
Totals, 1914	1,465,302	79,003	13,117,528

* Includes Anse la Butte and Welsh in Louisiana and Terry, Dayton and some scattered production in Southwestern Texas.

There was an increase all along the line in drilling operations in the Gulf coast region in 1915. There was not so much difference in the proven fields, but there was a large increase in wildcat operations.

Prices touched bottom early in the new year, when the average for Gulf coast credit balances was 45c. a barrel, with Humble black being posted as low as 35c. a barrel. Contract prices at the beginning of 1915 were made at 50c. to 60c. a barrel. At the close of the year they had stiffened to $1 a barrel.

The following table is a summary of drilling operations for 1915 in all Gulf coast districts:—

GULF COAST.

District.	Oil.	Dry.	Total.	New production.
Batson	32	11	43	1,468
Goose Creek	5	4	9	860
Humble	181	62	243	302,650
Markham	5	5	10	2,875
Saratoga	32	12	44	3,482
Sour Lake	102	39	141	34,840
Spindletop	6	5	11	426
Edgerly	36	6	42	48,275
Jennings	19	5	24	6,390
Vinton	32	17	49	22,645
*Miscellaneous	10	114	124	325
Totals	460	280	740	424,236
Totals, 1914	413	151	564	242,276
Increase, 1915	47	129	176	181,960

CALIFORNIA FIELDS.

California has again proven itself one of the greatest oil producing States of the Union. For the year 1915 California produced approximately 89,500,000 barrels of oil, nearly one-third of the entire output of the United States. Oklahoma again proved to be its closest competitor as to the quantity of oil produced. For the first time since 1906 a decrease was made in the production as compared with the output of the previous year. In this instance the decrease was to the extent of 13,000,000 barrels. Gross shipments for the year declined but 2,000,000 barrels, as compared with 1914 shipments, totaling 92,000,000 barrels. In consequence there was a gross shortage amounting to nearly 2,500,000 barrels for the year.

Last year may be considered in California a year of readjustment. Conditions at the first of the year were such as to strike consternation into the ranks of any body of operators, no matter how competent or aggressive. The war had worked havoc with foreign shipments of refined goods and crude oil, and in consequence the prices were very low, four cuts having been made during the year 1914. The first half of the year 1915 saw the operators adjusting themselves to these very unsatisfactory conditions. By stringent methods in shutting down production to the minimum figure, they were successful in a large measure, and at the extreme end of the year the outlook was little short of satisfactory.

No gusher was developed at any time during 1915, which was a rather exceptional feature for the year. That one would have been disastrous to the industry in general is unquestioned. The famous Midway field, home of the gushers, seems to have played out in this respect, although many moderately large wells are yet obtained from that district. The territorial expansion of proven oil land did not take place during 1915 to any marked degree, which probably accounts for a lack of big producers. The operators of the territory which was tainted

with being of gusher possibilities gave that lane a wide berth.

Oil Land Complications.

Natural conditions in California during 1915 were unsatisfactory enough, but that state of affairs was aided in no minor degree by the prosecution by the government of many companies in the San Joaquin Valley fields over the titles to their oil lands, which it is claimed were obtained fraudulently. The Southern Pacific Railway case, the main suit, which had been pending for some time, was heard for the first time in September. The Southern Pacific Railway has 150,000 acres involved. The operation of properties of all parties concerned has been placed in the hands of a receiver, who now has in his charge physical property worth $5,000,000, $1,250,000 in cash, and oil worth $4,000,000. Principal companies involved are the Standard Oil, Midway Pacific, General Petroleum, Brookshire companies and many others. In November the Oil Industry Association was formed, whose primary purpose was to secure justice in the withdrawal litigations. This association has sent many appeals to various governmental branches and has received the backing of many commercial organizations on the coast.

The bone of contention in practically all the suits was the period between September, 1909, and June, 1910, when most of the locations took place. President Taft in 1909 issued an order withdrawing from private location and acquisition the lands in question. Everybody concerned thought he had gone beyond his rights in this issue and continued their locations. In July, 1910, the Supreme Court verified his action. From then until the past year matters had drifted along, companies operated on the land in question, leases were given and lands sold, so that now any suit is of the most complicated nature. No definite decision has been rendered in these cases to date. During the past year, however, the government issued orders that no more operations should take place on the lands involved. In this way the industry was sorely hit during the year.

Stronger Conservation Policy.

Conservation is being practiced in the oil industry today in the California fields, such as has never been shown before. Not only in the production and refining of oil, but in the utilization of the by-products of oil. It has been absolutely essential for the operators to practice the most rigid conservation in order to come out on top in a financial way. The increasing development of the natural gas industry has placed it at the head of the by-product list. The estimate placed on the value of natural gas for 1915 was $1,050,000, by the State Mining Bureau. California now ranks second only to Oklahoma in being the greatest producer of natural gas of any State in the Union. Few advances were made in compressing gas into gasoline during 1915, as the price of gasoline was very low. During the latter half of the year the price was advanced, however; 1916, for this reason, should be a great year for casing-head gasoline. Natural gas is now being extensively used as fuel throughout the State. Two natural gas companies merged and now pipe gas from the Midway district and Fullerton district to Los Angeles, where sharp competition is taking place with the artificial gas companies. Already the towns of Anaheim, Fullerton, Orange, Whittier, and soon Pasadena, are furnished with natural gas from the oil fields. A portion of Los Angeles is also being supplied. Two enormous gassers were developed in the Fullerton district on Standard Oil Company property. One well is at present giving off 20,000,000 cubic feet of gas per day.

Along the line of the conservation of oil property must be mentioned the Department of Petroleum and Gas of the State Mining Bureau. This department's main effort is to conserve oil property. A bill was passed early in the year whereby authority was given this branch to draw up a bill which would conserve oil sands from underground water seepages due to the negligence in operating. Also authority was given to prosecute offenders. All abandoned wells are now first inspected by the bureau, which forces the water to be shut off properly.

During the whole year 1915 inventory was being taken of the Independent Producers' Agency's various properties. Two options were taken on the Union Oil Company's stock, but both fell through, and incidentally approximately $3,000,000 were forfeited. Toward the end of 1915 it was shown that one of the largest mergers in the history of the oil industry was at the root of all these activities, the Mexican Petroleum, Associated and Union Oil companies being the principal companies involved. The merger involves $150,000,000 in capital. No definite plans were made known to the public at the close of the year, but in the early part of January another option was obtained on the United Petroleum Company's stock, which controls the Union Oil Company, and all indications pointed to the deal being carried through.

The immediate future of the oil industry in California appears to be much more promising than the same period showed at the first of 1915. Prices were advanced and for five consecutive months there has been a shortage. Production will be curtailed to some degree for a while, but if the market proves substantial, which seems to be the case, the oil shut in will be brought to the surface and drilling will be resumed. The future is particularly bright for the big refiners and marketers. At present the producers have to depend solely on the outside market, as the oil consumed in California is but a small proportion of the total. So the result of external conditions governs the future to a large extent for the California oil industry. The home industries and manufactories must be developed so that a home market can be produced. Everything is favorable for this on the coast, so that the ultimate future for the industry here is assured.

Production and Consumption.

According to statistics compiled and made public by F. J. Silabee, statistician for the Independent Producers' Agency, the actual production of crude petroleum for California during 1915 was 89,725,776 barrels, 13,146,131 barrels less than was produced during 1914. The daily average production for the year was 245,824 barrels, as compared with 281,841 barrels for the year previous.

As the production was curtailed to the minimum amount at the first of the year, and as there was no incentive for increasing the production owing to low prices, it remained during the whole year at a steady figure, being at a monthly average of 7,477,148 barrels. At no time during the year 1915 did the production for one month equal the production for the same month the year previous.

Actual shipments for 1915 were 92,007,715 barrels, or 2,463,273 barrels less than the shipments for 1914. The year 1915 opened at a low figure in shipments and showed a steady increase monthly until the end of the year. The year closed with an increase of 1,000,000 barrels in December, as compared to January. This was directly opposite the record for 1914, which year opened strong in shipments and closed weak.

For seven months of the year, including the last five consecutive months, there was a shortage. Evidence of a shortage were noted in the spring when the traffic between the expositions called for an increased consumption and large contracts for road oil were made. It was thought the shortage which resulted from this would be but temporary, but the shortage increased as shipments increased.

Following is given a comparison of production and consumption by months during 1914 and 1915, also the surplus and shortage:—

PRODUCTION BY MONTHS.

Months.	1914, barrels.	1915, barrels.
January	8,656,495	7,698,316
February	7,953,638	6,948,929
March	8,839,364	7,567,197
April	8,561,630	7,336,900
May	9,046,157	7,686,517
June	9,335,739	7,443,957
July	9,858,535	7,738,643
August	9,934,853	7,690,047
September	9,503,849	7,330,038
October	8,360,571	7,675,146
November	7,905,095	7,222,608
December	7,825,981	7,397,478
Totals	102,871,907	89,725,776
Decrease, 1915	13,146,131	.....

SHIPMENTS BY MONTHS.

Months.	1914, barrels.	1915, barrels.
January	7,895,803	7,233,766
February	7,422,570	6,137,503
March	8,774,852	7,473,359
April	8,569,726	7,195,044
May	8,352,984	7,760,592
June	8,986,951	7,586,046
July	8,158,505	7,643,049
August	7,936,678	8,077,586
September	7,224,801	7,178,807
October	7,850,141	8,599,681
November	6,943,658	8,294,585
December	6,306,198	8,227,697
Totals	94,470,989	92,007,715
1915	92,007,715	
	2,463,274	

MONTHLY SURPLUS AND SHORTAGE.

Month.	Production.	Shipments.	Surplus.
January	7,698,316	7,233,766	464,550
February	6,948,929	6,137,503	811,426
March	7,567,197	7,473,359	93,838
April	7,336,900	7,195,044	141,856
May	7,686,517	7,760,592	*74,075
June	7,443,957	7,586,046	*142,089
July	7,738,643	7,643,049	95,594
August	7,690,047	8,077,586	*387,539
September	7,330,038	7,778,807	*448,769
October	7,675,146	8,599,681	*. 24,535
November	7,222,608	8,294,585	*1,071,977
December	7,397,478	8,227,697	*830,219

*Decrease.

SUMMARY FOR 1915.

Total production	89,725,776
Monthly average production	7,477,148
Daily average production	245,824
Total consumption	92,007,715
Monthly average consumption	7,667,309
Daily average consumption	252,076
Total shortage	2,281,939
Monthly average shortage	190,161
Daily average shortage	6,252
Oil shut in (daily average)	18,000
Potential surplus	11,050

SUMMARY FOR 1914.

Total production	102,871,907
Monthly average production	8,572,659
Daily average production	281,841
Total consumption	94,470,989
Monthly average consumption	7,872,582
Daily average consumption	258,825
Total overproduction	8,400,918
Monthly average overproduction	700,077
Daily average overproduction	23,016
Oil shut in	6,755,930
Potential output	169,627,837
Potential surplus	15,156,848

DAILY AVERAGE.

The daily average figures show that production maintained an exceptionally steady mark from month to month, with December having the least production of any month. Shipments rose steadily, opening at the first of the year at 233,347 barrels and closing at 265,409 barrels. The daily average oil shut in was decreased from 26,000 barrels in January to 15,000 barrels in December.

Following is given the daily averages:—

Month.	Production.	Shipments.	Surplus.
January	248,333	233,347	14,986
February	248,176	219,196	28,980
March	244,103	241,076	3,027
April	244,546	239,835	4,728
May	247,952	250,341	*2,389
June	248,132	252,168	*4,736
July	249,640	246,550	3,090
August	247,743	260,567	*12,824
September	244,334	259,293	*14,959
October	247,585	277,409	*29,409
November	240,753	276,486	*35,733
December	238,628	265,409	*26,781

*Shortage.

Month.	Oil shut in.	Potential surplus.
January	26,000	40,986
February	28,000	56,980
March	28,000	31,027
April	24,000	28,728
May	23,000	20,611
June	20,000	15,264
July	19,000	22,090
August	18,000	5,176
September	18,000	3,041
October	18,000	*11,824
November	15,000	*20,733
December	15,000	*11,781

*Shortage.

Production by Fields.

A decline in production in every section of the State, with the exception of the coast section, was shown during 1915. The Valley fields fell off to the extent of 12,105,392 barrels, the chief decrease being noted in the Midway-Sunset field, amounting to 9,787,490 barrels. In the coast section the Santa Maria Lompoc district was responsible for the increase in production in that section. The southern fields fell off in production 1,264,327 barrels.

In the Midway-Sunset field of the Valley section the last great gusher, Miocene No. 2, ceased to flow in March; for this reason the decrease in production was very prominent.

North of McKittrick, in section 35-27-20, a new field of 35 gravity oil was opened up by well No. 4 of the Belridge Oil Company, which was completed April 8 at a depth of 4,000 feet. Other wells were started on adjoining sections, but the extent and value of the field remained improved at the end of the year.

The Kern River field was one of the few that increased its production. During 1914 the production was 7,227,422 barrels, while in 1915 the total jumped to 8,094,673 barrels. The increased production was due to the expansion of one or two of the larger companies.

In the Santa Maria Sawyer field last year an excellent well was brought in by the Western Union Oil Company. The well came in at 4,000 barrels per day and flowed steadily at this rate for some time. At present it is producing about 2,000 barrels daily. This well alone is responsible in a large measure for the increased production in that field. The casinghead gasoline business is more advanced in this field than any other in the State, the gas giving a large per cent. of gasoline in proportion with gases in other districts. There are four large plants in the Santa Maria field alone.

The daily oil output from the Fullerton fields is now about 38,000 barrels. On account of the high gravity test, much is refined. There are pipe lines from Fullerton to San Pedro, to El Segunda and other points, and part of the output is hauled out in tank cars. The payroll of the Standard Oil Company in this field is about $40,000 a month. The Standard and Union each employ about 400 men.

The Los Angeles-Salt Lake is about pumped out. No drilling to any extent will be done in the future. The oil is low gravity. A falling off in production was noted for 1915 of 362,743 barrels.

The Ventura-Newhall fields have been exploited considerably during the year 1915. This field furnishes exceptionally high gravity oil and a good price is obtained for it. More wildcatting was done in this field last year than any other field. The production was increased by 84,177 barrels.

The number of producing wells was decreased in every field in the State during 1915.

Following tabulations show the production and number of producing wells of each field per month:—

MIDWAY-SUNSET.

	Producing wells.	Production.
January	1,313	3,463,619
February	1,237	3,115,553
March	1,230	3,352,478
April	1,239	3,249,565
May	1,210	3,345,258
June	1,247	3,234,754
July	1,287	3,301,812
August	1,296	3,334,516
September	1,272	3,221,549
October	1,321	3,472,341
November	1,454	3,243,573
December	1,317	3,279,506
Total	....	39,621,003
1914	....	49,408,493

COALINGA.

	Producing wells.	Production.
January	807	1,209,628
February	816	1,084,027
March	815	1,228,377
June	812	1,138,492
July	809	1,200,954
August	818	1,148,678
September	804	1,033,275
October	802	1,093,356
November	804	1,009,874
December	808	1,054,424
Total	....	13,567,380
1914	....	15,952,190

KERN RIVER.

	Producing wells.	Production.
January	1,198	552,137
February	1,179	500,904
March	1,222	555,728
April	1,258	563,088
May	1,371	701,609
June	1,450	755,148
July	1,438	772,693
August	1,481	791,445
September	1,467	725,410
October	1,478	747,694
November	1,456	702,442
December	1,483	715,958
Total	....	8,094,673
1914	....	7,227,422

McKITTRICK.

	Producing wells.	Production.
January	248	387,974
February	248	294,885
March	235	314,450
April	248	293,575
May	257	312,744
June	258	309,257
July	259	317,741
August	259	376,200
September	259	295,544
October	257	285,842
November	257	263,165
December	262	266,800
Total	....	3,585,899
1914	....	3,871,352

LOST HILLS-BELRIDGE.

	Producing wells.	Production.
January	258	387,974
February	258	354,522
March	255	363,475
April	259	363,501
May	245	378,608
June	250	349,134
July	249	377,854
August	249	376,200
September	251	354,625
October	253	385,632
November	253	329,982
December	255	355,872
Total	....	4,310,476
1914	....	4,825,366

SANTA MARIA-LOMPOC.

	Producing wells.	Production.
January	229	313,949
February	230	316,251
March	230	257,361
April	232	356,594
May	233	390,218
June	230	397,589
July	231	411,936
August	237	418,110
September	239	384,685
October	237	385,682
November	241	375,000
December	242	397,226
Total	....	4,493,575
1914	....	4,266,387

SUMMERLAND.

	Producing wells.	Production.
January	125	4,950
February	125	4,950
March	125	4,950
April	125	4,950
May	102	4,500
June	102	4,500
July	102	4,500
August	102	4,500
September	102	4,500
October	102	4,500
November	102	4,500
December	102	4,500
Total	....	55,800
1914	....	59,400

FULLERTON-WHITTIER.

	Producing wells.	Production.
January	560	1,191,932
February	565	1,042,768
March	569	1,126,479
April	572	1,048,926
May	573	1,093,035
June	578	1,010,721
July	579	1,076,477
August	584	1,053,375
September	583	1,054,805
October	591	1,071,525
November	595	1,035,065
December	595	1,066,803
Total	....	12,874,670
1914	....	13,860,431

LOS ANGELES-SALT LAKE.

	Producing wells.	Production.
January	700	173,392
February	699	187,441
March	699	187,169
April	699	186,969
May	693	178,637
June	694	162,672
July	695	181,844
August	696	168,266
September	697	168,442
October	696	172,821
November	696	160,598
December	696	165,131
Total	....	2,094,194
1914	....	2,456,937

VENTURA COUNTY AND NEWHALL.

	Producing wells.	Production.
January	423	72,343
February	426	68,628
March	433	76,730
April	432	82,710
May	431	91,109
June	428	81,780
July	434	92,926
August	431	86,885
September	435	87,203
October	422	87,753
November	433	98,409
December	436	91,258
Total	....	1,028,106
1914	....	943,929

PRODUCTION BY FIELDS.

Field.	1914. Production.	1915. Production.
Valley—		
Sunset-Midway	49,408,493	39,621,003
Coalinga	15,952,190	13,567,380
Kern River	7,227,422	8,094,673
McKittrick	3,871,352	3,585,899
L. H.-Belridge	4,825,366	4,310,476
Coast—		
S. M.-Lompoc	4,266,387	4,493,575
Summerland	59,400	55,800
South—		
Fullerton-Whittier	13,860,431	12,874,670
L. A.-Salt Lake	2,456,937	2,094,194
Ventura-Newhall	943,929	1,028,106
Totals	102,871,907	89,725,776

Field.	Difference.
Valley—	
Sunset-Midway	†9,787,490
Coalinga	†2,384,810
Kern River	*867,251
McKittrick	†285,453
L. H.-Belridge	†514,890
Coast—	
S. M.-Lompoc	*227,188
Summerland	†3,600
South—	
Fullerton-Whittier	†985,761
L. A.-Salt Lake	†362,743
Ventura-Newhall	*84,177

*Increase.
†Decrease.

SUMMARIES.

Field.	1914. Production.	1915. Production.
Valley fields	81,284,823	69,179,431
Coast fields	4,325,787	4,549,375
Southern fields	17,261,297	15,996,970

Fields.	Difference.
Valley fields	†12,105,392
Coast fields	*123,588
Southern fields	†1,264,327

April	820	1,186,422
May	819	1,190,779

*Increase.
†Decrease.

New Production.

The initial production from wells completed during the year totaled 80,750 barrels. No big wells were brought in except in May and September. In May two 1,000-barrel wells and one 2,800-barrel well were brought in. In September the Union brought in a 4,000-barrel producer in the north. New production fell away off during 1915.

Month.	New production.
January	6,246
February	5,190
March	5,700
April	4,170
May	11,300
June	2,870
July	6,397
August	7,870
September	17,912
October	4,220
November	3,375
December	5,500
Total	80,750

Field Operations.

The year 1915 opened with such low prices and with such a generally unsatisfactory condition of the oil industry that there was absolutely no incentive for any new work to be carried on. In consequence, field operations were cut absolutely to the minimum amount. The drilling that was done was only for the purposes of holding the contracts made for leases. Even this in many cases was too much for the operators. The spring shortage resulted in some extra drilling in certain territories, but only in those fields that produced good road oil, as there was a considerable demand for

that. As the shortage increased monthly during the last half of the year, all field operations slowly advanced toward their former mark and in December the number of drilling wells was considerably increased, while the number of rigs up was about three times the average per month for the year.

The Fullerton-Whittier fields were more active in proportion to the amount of work done than any other district. In the La Habra Valley and Brea Canyon district and Placentia developments were quite extensive. A large pipe line was completed by the Union Oil Company to the coast. The extreme eastern end of the La Habra Valley district has suffered by the intrusion of water into the sands. This territory was drilled by rotary and wells were even tapped into the oil sand by this method of drilling. Much speed was shown in putting the wells down, but many think permanent injury was inflicted upon the oil sands of this district by the rotary. The Standard Oil Company and Union Oil Company, which two companies furnish over 75 per cent. of the drilling in that locality, have abandoned the rotary for cable tools. Although the holes are more slowly put down, the ultimate results will be much more satisfactory.

The number of wells drilled during 1915 was reduced on a monthly average just about 40 per cent. No field showed an increase in this respect. The number of drilling rigs in the Midway Sunset fields was reduced from 838 in 1914 to 534 in 1915. The other large fields suffered in like proportion. The monthly average in 1915 was 145 drilling wells, as compared to 222 in 1914. The average monthly number of rigs up was 13, as compared to 19. Wells completed were 28, compared to 37 the year previous.

Very little wildcatting was done. In Ventura-Newhall county the invasion of unknown territory was attempted. Incidentally the number of abandoned wells in this territory was increased from 11 to 25 during the year. Oil was reported being found in Imperial Valley, where one or two wells are being put down by San Diego capitalists. All geographical indications, according to various geologists who have visited this field, point to no commercial quantities of oil. Many fields yet remain to be exploited, however, and when the time becomes ripe for more oil it will be found.

Following are given tables showing the field operations for the year according to fields:—

SUNSET-MIDWAY.

	Rigs up.	Wells completed.	Wells abandoned.	Wells drilling.
January	1	5	1	43
February	8	14	3	42
March	4	11	5	47
April	7	9	1	49
May	6	17	1	46
June	8	14	4	49
July	7	20	..	47
August	4	15	1	46
September	7	19	..	39
October	7	9	..	37
November	10	8	3	42
December	19	11	2	47
Totals	88	152	21	534
1914	151	188	27	838

COALINGA.

	Rigs up.	Wells completed.	Wells abandoned.	Wells drilling.
January	..	2	4	10
February	..	..	..	9
March	1	1	2	11
April	..	2	1	8
May	..	1	..	10
June	1	2	5	7
July	..	..	1	8
August	2	..	2	9
September	..	1	..	7
October	1	..	1	12
November	..	2	3	12
December	1	1	1	13
Totals	6	12	20	116
1914	13	34	44	255

KERN RIVER.

	Rigs up.	Wells completed.	Wells abandoned.	Wells drilling.
January	..	..	..	2
February	..	4	..	2
March	1	..	..	3
April	..	1	..	2
May	..	1	..	3
June	..	..	..	7
July	..	..	5	2
August	..	1	..	2
September	..	1	..	4
October	..	..	1	4
November	2	2	..	8
December	..	3	..	9
Totals	3	13	6	48
1914	7	12	4	51

McKITTRICK.

	Rigs up.	Wells completed.	Wells abandoned.	Wells drilling.
January	..	..	..	2
February	..	..	..	2
March	..	..	..	2
April	..	..	..	2
May	..	1	1	6
June	..	1	..	..
July	..	..	..	..
August	..	..	..	..
September	..	..	..	..
October	..	..	1	4
November	2	..	1	5
December	1	..	..	..
Totals	4	2	2	21
1914	11	8	9	29

LOST HILLS-BELRIDGE.

	Rigs up.	Wells completed.	Wells abandoned.	Wells drilling.
January	2	..	..	4
February	2	..	..	6
March	1	2	..	5
April	1	8	7	6
May	1	10	1	3
June	..	..	..	4
July	..	1	2	3
August	1	..	1	6
September	..	1	..	4
October	..	..	..	6
November	6	2	..	8
December	5	3	..	11
Totals	19	27	11	66
1914	32	53	12	159

SANTA MARIA-LOMPOC.

	Rigs up.	Wells completed.	Wells abandoned.	Wells drilling.
January	..	7	14	5
February	..	1	6	3
March	..	..	..	4
April	..	1	..	4
May	..	2	1	3
June	..	6	7	3
July	..	4	4	4
August	1	2	6	10
September	..	..	1	7
October	..	2	..	9
November	..	..	..	6
December	1	..	..	6
Totals	2	25	39	58
1914	6	12	..	132

FULLERTON-WHITTIER.

	Rigs up.	Wells completed.	Wells abandoned.	Wells drilling.
January	5	8	2	51
February	..	10	11	46
March	4	4	2	48
April	5	..	..	49
May	5	7	5	54
June	5	4	1	54
July	3	8	..	51
August	2	3	1	56
September	1	6	..	56
October	3	4	..	60
November	4	3	..	64
December	..	6	1	62
Totals	37	68	23	651
1914	80	77	15	858

VENTURA COUNTY-NEWHALL.

	Rigs up.	Wells completed.	Wells abandoned.	Wells drilling.
January	..	2	1	18
February	..	3	1	18
March	3	2	..	16
April	2	7	2	17
May	2	2	..	17
June	1	2	1	16
July	..	3	7	17
August	1	2	2	20
September	..	3	2	23
October	1	5	4	16
November	..	3	6	19
December	..	..	..	19
Totals	10	34	26	216
1914	21	44	11	296

LOS ANGELES-SALT LAKE.

	Rigs up.	Wells completed.	Wells abandoned.	Wells drilling.
January	..	..	..	1
February	..	..	..	..
March	..	..	..	..
April	..	..	..	1
May	..	..	..	1
June	1	..	..	..
July	..	..	..	..
August	..	..	..	1
September	..	..	..	..
October	..	..	..	..
November	..	..	..	..
December	..	..	..	..
Totals	..	1	..	4
1914	..	10	7	40

SUMMERLAND.

	Rigs up.	Wells completed.	Wells drilling.
January	8	24	136
February	10	32	128
March	14	20	136
April	15	33	138
May	14	41	138
June	15	30	134
July	10	36	143
August	11	23	150
September	3	31	148
October	13	20	152
November	24	20	161
December	27	24	172
Average, 1915	13	28	145
Average, 1914	19	37	222

WELLS PRODUCING.

1915.	Active.	Abandoned.
January	5,861	22
February	5,783	21
March	5,813	9
April	5,884	11
May	5,943	38
June	6,049	18
July	6,083	19
August	6,153	13
September	6,169	3
October	6,159	6
November	6,149	12
December	6,196	4

Stocks.

The stock report for the year gives more satisfaction to producers than any other report for the year. January 1, 1915, saw 58,259,119 barrels of oil in storage, with the mark increasing rapidly each month. In April the high mark was reached when 59,770,789 barrels were shown to be in storage. From then on, however, the stocks were drawn on until the year ended with 55,977,180 barrels on hand.

The net decrease in stocks during 1915 was 2,281,939 barrels, as compared to the net increase of 8,400,918 barrels as shown during 1914.

Following is given the range in stocks during the year 1915:—

RANGE IN STOCKS.

Month.	Barrels.
January 1	58,259,119
January 31	58,723,669
February 28	59,535,095
March 31	59,628,933
April 30	59,770,789
May 31	59,696,714
June 30	59,554,625
July 31	59,650,219
August 31	59,252,680
September 30	58,803,911
October 31	57,879,376
November 30	56,807,399
December 31	55,977,180
Net decrease	2,281,939
Net increase, 1914	8,400,918
Net increase, 1913	1,581,825

Output and Value.

As shown by the following record, the production for 1915 decreased, as compared with the previous year, for the first time since 1906. The decrease was 10 per cent.

The valuation is made at an average of 46c. per barrel. The advances in price came at the fag end of the year. In consequence, they would not affect the average price per barrel to any large extent.

Following is a tabulation of the production and valuation of oil per year since 1900:—

Year.	Production.	Value.
1900	4,324,484	$4,076,975
1901	8,786,330	4,974,540
1902	13,984,268	4,873,617
1903	24,382,472	7,399,349
1904	29,649,434	8,265,434
1905	33,427,473	8,201,846
1906	33,098,598	9,553,430
1907	39,748,375	14,699,956
1908	44,854,737	23,433,502
1909	55,471,601	30,756,713
1910	73,010,560	35,749,173
1911	81,134,391	38,719,080
1912	97,272,593	39,624,501
1913	97,788,525	45,709,400
1914	102,871,907	46,292,358
1915	89,726,776	41,273,856
	819,531,524	$363,604,030

Market Fluctuations.

The record of fluctuations in the price offered for crude oil at the well shows that during the year three advances and one small cut were made. The cut came in June and affected only low gravity oil in the San Joaquin Valley fields. In October this price was raised again to its former level. Not until November 20 was there a general advance, although for several months previous to this monthly statistics had shown a decided shortage. On this date all grades of oil in all districts were offered a 5-cent advance, with the exception of the Ventura county fields, where prices already were high.

December 28 another advance was offered for all grades of oil in all districts; also the Standard Oil Company inaugurated a new buying basis for crude oil. Under the new system, a certain price is offered for a certain gravity oil. For each degree in gravity per barrel above set price one cent is added, making the system of buying much more simple. In the San Joaquin Valley fields, 43 cents is paid for oil from 14 degrees up to and including 17.9 gravity, and for each increase in gravity of one full degree, one cent additional is paid. In Ventura county 67 cents is paid for oil per barrel of 26 degrees to and including 26.9 gravity, and for each degree above 26.9 gravity, 1 cent additional is paid. In the Fullerton-Whittier fields, the minimum gravity oil accepted is from 14 degrees to and including 17.9 gravity, and as in the other fields, 1 cent is added for one full degree above this set figure.

It can be seen by glancing at the schedules that generally there was equality in the proportionate gains of the several grades, although all are given better prices. The Ventura fields were not hit by any change in the schedule of prices until December 28. Its medium grades of oil, however, received the most benefit of the new schedule.

The range in the prices of gasoline for the year are given below. Two cuts were made the early part of the year, but the four advances during the last half year left the price per gallon 2½ cents higher than was shown when 1915 was ushered in.

Following is the price schedules in crude oil and gasoline:—

San Joaquin Valley Fields.

KERN RIVER, MIDWAY-SUNSET, McKITTRICK, LOST HILLS-BELRIDGE, COALINGA.

	Jan. 1.	June 7.	Oct. 26.	Nov. 20.
14° to and including 20.9° gravity	$0.37½	$0.32½	$0.37½	$0.40
21° to and including 26.9° gravity	.40	.40	.40	.45
27° to and including 30.9° gravity	.45	.45	.45	.50
31° gravity and lighter	.50	.50	.50	.55

VENTURA COUNTY.

21° to and including 26.9° gravity	$0.50	$0.50	$0.50	$0.50
27° to and including 30.9° gravity	.60	.60	.60	.60
31° gravity and lighter	.70	.70	.70	.70

WHITTIER-FULLERTON FIELD.

18° to and including 20.9° gravity	$0.40	$0.40	$0.40	$0.45
21° to and including 26.9° gravity	.42½	.42½	.42½	.47½
27° to and including 30.9° gravity	.52½	.52½	.62½	.57½
31° gravity and lighter	.60	.60	.60	.62½

GRAVITY, DECEMBER 28.

San Joaquin Valley.

KERN RIVER, MIDWAY-SUNSET, McKITTRICK, LOST HILLS-BELRIDGE, COALINGA.

14° to and including 17.9° gravity	$0.43
18° to and including 18.9° gravity	.44
19° to and including 19.9° gravity	.45
20° to and including 20.9° gravity	.46
21° to and including 21.9° gravity	.47
22° to and including 22.9° gravity	.48
23° to and including 23.9° gravity	.49
24° to and including 24.9° gravity	.50
25° to and including 25.9° gravity	.51
26° to and including 26.9° gravity	.52
27° to and including 27.9° gravity	.53
28° to and including 28.9° gravity	.54
29° to and including 29.9° gravity	.55
30° to and including 30.9° gravity	.56
31° and lighter	Special rates

Ventura Fields.

26° to and including 26.9° gravity	$0.67
27° to and including 27.9° gravity	.68
28° to and including 28.9° gravity	.69
29° to and including 29.9° gravity	.70
30° to and including 30.9° gravity	.71
31° to and including 31.9° gravity	.72
32° and lighter	Special rates

Fullerton Fields.

16° to and including 16.9° gravity	$0.48
17° to and including 17.9° gravity	.49
18° to and including 18.9° gravity	.50
19° to and including 19.9° gravity	.51
20° to and including 20.9° gravity	.52
21° to and including 21.9° gravity	.53
22° to and including 22.9° gravity	.54
23° to and including 23.9° gravity	.55
24° to and including 24.9° gravity	.56
25° to and including 25.9° gravity	.57
26° to and including 26.9° gravity	.58
27° to and including 27.9° gravity	.59
28° to and including 28.9° gravity	.60
29° to and including 29.9° gravity	.61
30° to and including 30.9° gravity	.62

Gasoline.

	Per gal.
January 1	$0.12½
February 4	.11½
July 15	.11
September 30	.12
October 7	.13
October 26	.14
November 26	.15

Notable Events.

The Royal Dutch-Shell combine strengthened its holdings in California during 1915 when it completed the valley pipe line between the Coalinga field and the site of the newly completed Shell refinery at Martinez, on San Francisco Bay. The line was laid at a cost of about $4,000,000, a distance of 170 miles. The total investment of the Royal Dutch-Shell combine in refineries, pipe lines, oil lands, distributing stations, American ships and buildings amounts to about $35,000,000. This tremendous expansion has come in the last few years. The combine also purchased the rights to a new refining system formerly owned and invented by S. Trumbell, a California man.

A new refinery was started during 1915 at Fillmore, Ventura county, known as the Ventura Refining Company. This company is entering into strict competition with the large refineries and marketers of the State, especially in gasoline business. Other refined products are also put on the market by this company.

The international jury at the exposition gave the verdict that California refined products were better than the Eastern refined products. In each case where the California products were exhibited in competition with the product of the Eastern paraffin base oil, the California asphaltic-petroleum product won. This is an exceptional honor that has been given California products, and the wonderful potentialities of California oil not only as fuel oil, but in refining, has made the country open its eyes.

The activity of stocks on the exchanges during 1915 was notable. Many stocks took unprecedented jumps. The Union Oil Company one year ago was offered at $51.50; at the close of the year the price hovered close to the $80 mark, and was strong at that. Practically all the other $100 stocks strengthened also, the Associated jumping from $38.25 at the first of the year to $72 at the close of 1915. Other stocks in heavy demand at the close of the year were the Columbia, Olinda, Rice Ranch and West Coast. The underlying reason is the total consumption running far behind the production, the threatened withdrawal of thousands of acres of oil land by the government and the rise in price. All these conditions mean increased earnings and in consequence increased dividends for certain companies.

THE WYOMING-UTAH FIELDS.

According to L. W. Trumbull, State geologist of Wyoming, the oil production in that State in 1915 showed a big increase over that of 1914. Exact figures are unavailable so early in the year, but it is known that Salt Creek, the biggest oil producing district of the State, has had a considerably larger output than ever before. Grass Creek, Greybull and Torchlight have entered the list of real commercial producers for the first time and the old Spring Valley field is again producing. The production around Byron is understood to have fallen off slightly.

One new field has been brought in during the past year—Elk Basin, or Silver Tip—with a probable productive area of about 2,000 acres. The Lander field has been steadily developing until it is now ready to make a steady production.

Oil was the most spectacular of Wyomin resources during 1915 and it promises to remain so indefinitely. From a daily production of a few hundred barrels three years ago, the oil industry has developed so rapidly that the present per diem production probably is between 12,000 and 15,000 barrels. Accurate information is difficult to obtain, but an annual production of 6,000,000 barrels is regarded as a fairly conservative estimate. Some estimates place the daily output as high as 26,000 barrels, which would mean an annual production of nearly 10,000,000 barrels. This is perhaps an exaggeration, although with the rapidity of recent developments in the oil industry it seems certain that production of this magnitude will shortly be realized. On the basis of a refined value of $5 a barrel, an annual production of 6,000,000 barrels represents $30,000,000.

The bulk of the State's oil production in 1915, as in past years, was in the Salt Creek field of Natrona county, the output of which was refined in the big plants of the Midwest Refining Company and the Standard Oil Company at Casper. Other refineries were operated at Cowley, Chattam, Greybull and Spring Valley. The town of Greybull, Big Horn county, was the scene of the most interesting oil development of the year, quite a number of strong wells being brought in within the town limits. Several wells here had an initial production of at least 400 barrels, following a town-lot drilling campaign, the townsite evidently being underlaid with the best sand.

In December the Big Horn Oil and Gas Company put in operation a 3,000-barrel refinery at Greybull. Plans are under way, it is understood, to increase the capacity to 15,000 barrels. The Big Horn Oil and Gas Company has about 30 producing wells, located seven miles southeast of Greybull and four miles northeast of Basin, on the east side of the river, and west of the river near the town, all connected with gathering lines flowing into three 37,500-barrel steel tanks, from which the refinery will draw. The Greybull-Basin field, on both sides of the Big Horn River, extends nine miles north and south and is six miles east and west, with sand ranging in depth from 900 to 1,200 feet, the crude testing 40 per cent. and better in gravity. It is said to be a very excellent refining oil.

The Big Horn basin as a whole has recently been the scene of unusual activity. The producing district now embrace territory beginning at Grass Creek, near Thermopolis, on the south, at Little Buffalo basin north of Grass Creek, at Basin, at Greybull, at Byron, and just over the Wyoming line in Montana. From Thermopolis to the Montana well is approximately 100 miles north and south, and the width of the territory east and west is about twenty-five miles, following the Big Horn River, Grass Creek and the Shoshone River, on which the Byron field is located. Basin on the Big Horn River and the Burlington railroad has been made the headquarters of the district, with the Oil Well Supply Company, the National Supply Company and the Continental Supply Company having stores there and the Midwest Oil Company maintaining district offices. In addition to the new refinery at Greybull, there is a refinery at Cowley, operated by the Northwestern Refining Company, controlled by the Montana-Wyoming Company and Billings, Mont., people. At Chattam, near Thermopolis, the Midwest Refining Company, of Denver and Casper, has a splitting plant in operation, supplied by a six-inch pipe line from Grass Creek, operated by the Ohio Oil Company. The Midwest Oil Company is shipping some of its own crude to the Midwest Refining Company at Casper. It will thus be seen that reasonable facilities have been installed to handle the output of the district.

Keen interest has been shown the past few weeks in persistent reports that the Ohio Oil Company, a subsidiary of the Standard Oil Company of Ohio, contemplates taking over the Midwest Oil Company, the largest producer in the Wyoming fields. The Midwest Oil Company is capitalized for $6,000,000 and is closely

allied with the Midwest Refining Company, a marketing concern capitalized at $18,000,000. The reported efforts of the Ohio company are credited to a desire to enlarge its output so it can profitably construct a pipe line from the Wyoming fields to the Missouri River at Omaha. The reports said that the Ohio company had obtained large holdings in the Elk basin on the Wyoming-Montana boundary. President O. H. Shoup, of the Midwest Refining Company, has issued a statement denying the reports of any negotiations for the passing of the Midwest to the Ohio. He declares the rumors grew out of the fact that the same attorneys have appeared in certain litigation in which the two companies, operating in the same territory, have been mutually interested.

It is understood that the Midwest Refining Company, in addition to acquiring 80 per cent. of the proved oil land in Elk basin, has taken option on a three-quarter interest in other properties in that field, subject to royalty of one-eighth on all crude oil sold. This tract comprises 1,120 acres. The company also leased ten other claims, aggregating 1,600 acres, and has contracted to take oil produced on five more claims. The Ohio Oil Company, operating in this field, has obtained satisfactory results thus far, according to report, one of its wells having indicated production of 500 barrels a day. A pipe line from the Elk basin field to the town of Frannie is planned.

At a recent meeting in Greybull, F. John Sur, a geologist, stated that the oil district of Wyoming covers a field 150 miles long by fifty miles wide and that Wyoming is possessed of eight oil strata or sands—a formation not possessed, it is said, by any other State in the Union. Considerable work has been started on segregated oil lands in anticipation of the oil lease law passing Congress at this session. It is confidently expected that prospective oil territory now being drilled will be highly productive, though the new production will probably not cut much figure until at least 1917.

Wyoming crude is now selling from $1 to $1.40 a barrel. It is valued for taxation purposes at 42 cents a barrel.

In all fields drilling is progressing rapidly and new strikes have become so frequent that they no longer create more than passing notice. The development would undoubtedly be much greater were it not for the Federal withdrawal of lands. While during the year special attention has been focussed chiefly on the new fields, the development of the older districts has been going steadily forward. Indication of the growing importance of the oil industry may be found in the increases shown in the assessed valuations of the oil counties. Natrona county, for example, shows an increase in assessed valuation over the previous year of $1,318,000. Big Horn county's increase is placed at approximately $225,000.

Natural gas discoveries during the year also were important. In the Buffalo basin gas strikes totaling a flow of 20,000,000 cubic feet daily were made, while in the Byron section wells now sunk are said to be capable of 100,000,000 cubic feet per day. One giant gasser near Byron, with an estimated flow of 40,000,000 cubic feet daily, was capped in December after weeks of effort to control the pressure. Dr. F. J. Pack, of Salt Lake City, president of the Utah-Wyoming Consolidated Oil Company, which owns several of the largest gushers, recently stated that steps were being taken toward piping the gas to Salt Lake and other cities and towns of Utah, Idaho and surrounding States.

The year 1915 brought little change materially in the status of the oil districts that lie wholly within the State of Utah. Considerable prospecting has been done, in addition to assessment work on lands already taken. Optimism is expressed over oil and gas projects in San Juan, Uinta, Emery, Grand, Boxelder and Cache counties, but commercial production has not yet materialized. The Salt Lake refinery of the Utah Oil Refining Company has had a good year. Its crude comes from the Wyoming fields.

Following are the reports of twenty-two oil companies of Wyoming as submitted to State Auditor Robert B. Forsyth. The total is 3,520,670 barrels. Rated at a valuation of 42 cents per barrel, fixed by the State Board of Equalization for assessment purposes, the total valuation of the twenty-two companies' output for 1915 is $1,462,762.04. In 1914 these same companies reported a total output of 2,715,933 barrels, the increase for 1915 being, therefore, 804,737 barrels.

Manifestly the valuation of 42 cents per barrel is far too low to be taken as an actual valuation. State Geologist Trumbull, perhaps the best oil authority in the State, values it at $3.75 a barrel at the well, which would make the total valuation several times larger than the figures shown in the accompanying table.

The report by companies is as follows:—

	Output, barrels.	Valuation.
Wyoming Oil Fields Co. (subsidiary of Midwest Oil Co.)	1,067,710	$448,438.20
Midwest Oil Co.	948,905	398,540.10
California Oil Co.	605,939	254,424.38
William Hanley	292,618	122,899.56
Castle Creek Oil Co.	223,091	93,698.22
Barbadoes Oil Co.	123,520	51,878.40
Montana & Wyoming Oil Co.	84,159	35,346.78
Wypo Oil Co.	29,055	12,203.10
Wyoming Crude Oil Co.	27,506	11,552.52
Economy Oil Co.	26,242	11,051.64
Keystone Oil & Refining Co.	14,147	5,941.74
E. E. Jones	10,426	4,378.92
Northwestern Oil Co.	6,978	2,930.76
Crescent Oil Co.	5,715	2,400.30
Blackmore Oil Co.	4,529	1,902.18
Bluestone Oil Co.	3,614	1,517.88
Pine Dome Oil Co.	2,714	1,139.88
Hjorth Oil Co.	2,656	1,115.52
Mountain Oil Co.	2,122	891.24
F. A. Miller	961	403.62
T-C Oil Co.	170	71.40
Seattle Oil Co.	85	35.70
Totals	3,482,862	$1,462,762.04

MEXICAN PETROLEUM REVIEW.

The total petroleum production of Mexico for 1915 is placed at 33,927,950 barrels, surpassing the former yield by 7,692,547 barrels, and establishing a high record. The distribution of the 1915 output by fields is as follows:—

	Barrels.
Southern	28,817,010
Panuco	3,756,540
Topilla	554,000
Ebano and miscellaneous	555,400
Tehuantepec	245,000
Total	33,927,950

The potential production is estimated at far in excess of the above total, based on the following record:—

Field.	Number of wells.	Potential prod.
Southern	58	307,645
Panuco	52	281,065
Topila	15	7,937
*Miscellaneous	40	5,721
†Isthmus	15	672
Totals	180	603,040

* Includes Valles, Ebano, Caracol, Las Palmas, El Cerito and Chila.
† Number of wells is estimated; daily production is based on the total production in 1915.

The principal increase in actual production last year was from the Topila fields. The unsettled conditions of the country and a temporary suspension of all operations under a government decree resulted in a comparatively poor showing of field results, as shown in the following table:—

Field Operations.

Field.	Completions.	Initial prod.	Dry or abd.	Salt water.
Panuco	7	73,600	..	2
Southern	9	5,600	4	1
Topila	2	1,900	..	..
Miscellaneous	3	40	2	..
Isthmus	..	..	..	..
Totals	21	81,140	6	3

Panuco was the scene of the best completion of the year. This was No. 1 Los Chotes, drilled as an offset to La Corona's big gusher of 1914, by George Harman and associates. The well was less than 100 feet from the Corona well, but the drill was sent 314 feet deeper than the latter before the big pay was encountered. The initial capacity of the new well was at the rate of 60,000 barrels a day. One 10,000-barrel well, one 3,000-barrel, and a 100-barrel producer completed the list of pay completions.

In the Topila field the only completion of special note during the year was American Fuel Oil Company's No. 1 Loma del Pozo, which, while its status as an oil producer was for a time not determined, as a gasser it was reported as a record for the country. A conservative estimate of the oil production of the test prior to its being shut in was 1,500 barrels. The well proved an extension of the Topila field to the southeast and considerable activity among lease men was the result of its completion.

Shipments.

Shipments of crude oil, prepared fuel and the lighter products of topping plants aggregated approximately 24,381,101 barrels during 1915. This is an increase over similar shipments in 1914 of 3,706,744 barrels. Of the total given for 1915, 461,140 barrels represented the lighter products of topping plants, the remainder crude oil and prepared fuel, principally the latter.

Tampico cleared during the year 11,742,159 barrels, and Tuxpam, 12,638,942 barrels. Tampico's clearances showed a slight decrease when compared with 1914, but Tuxpam—owing to the Penn Mex Fuel Company commencing shipments during the year—showed a decided increase.

The feature of these shipments was the steady increase in the cargoes clearing directly for South America. That country received cargoes during the year aggregating 1,394,627 barrels, as against 195,138 barrels in 1914. Both coasts received consignments. The United States took the bulk of the oil shipped from Mexico, being credited with 17,960,338 barrels, while Mexico received coastwise 4,620,589 barrels. Of the Mexican coastwise shipments all of this oil except a few sporadic cargoes of fuel oil for Vera Cruz went to the Mexican Eagle's refinery at Minitilan.

The record of 1915 exports was as follows:—

To—	
United States	17,960,338
Mexican coastwise	4,620,589
South America	1,394,627
United Kingdom	181,202
Panama	119,522
Continent	55,939
Central America and West Indies	48,884
Total	24,381,101

Stocks and Distribution.

Stocks on hand in Mexico at the close of 1915 were estimated at 18,431,153 barrels. An approximate estimate of the distribution of the year's production was computed as follows, in barrels:—

Shipments, 24,381,101; passed to storage, 4,000,000; bunker deliveries and local miscellaneous, 1,350,000; tank car deliveries, 607,168; refineries, topping plants, etc., 3,589,681.

The tank car deliveries for 1914 amounted to 1,172,898 barrels. Most of this oil was delivered the railways for fuel.

CANADIAN OIL AND GAS REVIEW.

The 1915 report of oil and gas production shows two important tendencies or facts, the steady decline in production of oil and the more widespread use of natural gas. Ontario maintains its primacy as a center of production. The Alberta fields are still largely in the proving stage, having passed within the year through the depression following a senseless boom. The great development in distribution are the formation of the International Petroleum Company by the Imperial interests, and concomitant developments in facilities for storage and refining shipment by the Imperial Oil Company on the Pacific coast for the Western provinces.

The official estimates of the Imperial Oil Company of production of crude oil in the Canadian fields make no mention of the Western areas as producers. They give the total year's production for all districts of Ontario, and therefore of Canada, for 1915, as being 209,520 barrels and 34 gallons. These barrels are of 35 imperial gallons.

The Ontario production of crude oil by districts is as follows:—

	Barrels.	Gallons.
Petrolea	103,105	29
Dutton	2,057	22
Oil Springs	56,544	6
Bothwell	31,618	24
Blakely	405	24
Onondaga	1,541	12
East Tilbury	14,147	10
McGregor	100	19

Oil production in the Ontario districts varied little from month to month. There were no sensational lapses or discoveries either and the country, apparently, must look to new parts of Canada for new sources of supply. The decline in production has become so serious as to call forth from the Ontario Government a careful investigation of the whole situation which has just been issued in a long report of the Mines Department.

In Alberta some production of oil of a good quality is claimed by the Dingman wells. There is talk of a pipe line through to Winnipeg, but this great need is oil before anyone will invest real money in the piping venture. A refinery has yet to be established in the Alberta fields. Several of the oil stocks, about fifteen of them, continue to be offered on the oil exchange at Calgary, Alberta, notwithstanding the fact that William E. Buck, the promoter of the famous Black Diamond well, has been committed after ten days' hearing to trial for the alleged offense of salting that well for the benefit of the visiting Duke of Connaught and for the benefit of investors.

The Imperial Oil Company in 1915 completed its refinery at the sea front at Vancouver and also constructed a great storage system at the northern port of Prince Rupert on the Pacific. The Grand Trunk Pacific Railway installed the oil-burning system on its mountain division in the Rockies during the year. Prospects for the oil trade between Peru and the coast refineries and the prairie provinces for next year are accordingly good.

The following is from the special report of the Ontario Bureau of Mines:—

The Lambton county field has been producing continuously since 1862. In the first few months of its history a few of the wells yielded from 1,000 to 7,500 barrels daily, but at present and for many years in the past the average yield of a well is very small—probably eight or nine gallons a day. The Deputy Minister of Mines points out that only the large number of wells, and the economy in management which long experience has taught the operators, that enables Lambton county to be reckoned among the oil-producing regions today.

The largest section of the Lambton field—the Petrolea district—is the largest in area in the province, extending about ten miles northwest to southeast, with an average width of three miles. Oil occurs here at a depth of 370 to 480 feet below the surface, and at 60 to 70 feet below the top of and in the Onondaga limestone. The deepest well in Ontario was drilled at Petrolea, its depth being 3,777 feet.

Oil was first discovered in East Tilbury township, Kent county, in 1905. Two years later the production had risen to 411,588 barrels annually, but by the year 1914 it had fallen to 18,530 barrels. Oil occurs in the Tilbury field at a depth of 1,250 to 1,426 feet below the surface.

While the production of oil in the Bothwell oil field, Kent county, has been gradually falling one small section of the Bothwell area is still a steady producer. The wells in this section are shallow, averaging about 600 feet in depth, and the formations drilled through are very similar to the Lambton field.

In 1902 oil was discovered in the now abandoned Leamington oil field in Essex county. In 1905 one well had a flow of 1,200 barrels daily for the first three days, but it rapidly fell to about 200 barrels. The whole field has since been abandoned.

While all these oil fields occur in a small area in the southwestern portion of the province, the occurrence of natural gas is more widespread. Natural gas is found in Ontario in the following geological formations:—Onondaga, Guelph, Clinton, Red Medina, White Medina and Trenton. Less important amounts occur in the drift.

There are six gas-producing fields in the province.

The Essex field was abandoned by the gas operators in 1912. A few wells are still supplying gas to farm houses. The field was not over three square miles in area. The first well here was drilled in 1889. It measured over 10,000,000 cubic feet "open flow," and registered 460 pounds pressure.

The Kent county field is a small but valuable area which first appeared as a gas producer in 1907. The production from this field up to the end of 1913 amounted to about 31,000,000 cubic feet. This is commonly known as the Tilbury field. The wells with the largest capacity are found in the southern part, adjoining Lake Erie. Undoubtedly the gas-bearing rock extends under the lake some distance.

The Lambton county gas field began in 1913 when several wells were drilled at Oil Springs and gas discovered in moderate quantity. Then the Fairbanks well in 1914 gave a larger flow of gas than any found hitherto in Ontario. The capacity when first drilled in was said to be 15,000,000 cubic feet, but since then it has proved a disappointment. Gas occurred at a depth of about 1,900 feet.

To the east of the oil fields is the large gas field of Welland-Haldimand-Norfolk-Brant counties. The first well sunk within a few miles of Niagara Falls in 1889 measured 1,700,000 cubic feet, and was 836 feet deep. The pressure was 525 pounds. Since that time drilling has extended westward and northward through the four counties, but the best producers have always been near Lake Erie. It cannot be regarded as a continuous field.

Surface gas in considerable quantities was found in 1912 eighty miles from any of the other fields in York county, north of Toronto and Lake Ontario. The well was originally drilled for water which spoiled flow of gas after 5,000,000 cubic feet had been produced.

The report continues by saying that the analyses do not appear to show that the geological formation in which the gas is found has any influence on the composition. In taking the samples from Welland county a special effort was made to ascertain this, but gas from four formations was found to be unaffected by this factor. In the Western Ontario fields the gas is all obtained from one formation in the same field.

In the old field of Welland-Haldimand, etc., a number of wells which are almost exhausted were sampled purposely to see if there was any difference between the low and high pressure wells as regards composition. But the list of analyses of gas from Haldimand shows that there is no apparent concentration of the sand and nitrogen in the nearly exhausted wells.

The most striking feature of the chemical analyses of the various wells and fields is the uniformity of the gas derived from the widely separated and totally disconnected areas. The almost complete absence of carbon dioxide in the Ontario gases is also peculiar.

The Trenton limestone being the most important source of oil in Ohio it is of interest to inquire into the possibilities of this formation in Ontario. A government expert remarks:—"So far as known gas or oil has not yet been found in these limestones in Ontario in commercial quantities, despite their wide extent and many borings." The report suggests that even if oil and gas had ever been present they have long since largely escaped.

Oil shales were distilled near Collingwood, Ontario, as far back as 1859, but the Petrolea discoveries have killed this industry, which the government now seeks to revive by describing success in a similar line in Scotland.

In the natural gas industry the year has been marked by a steady production and by an abundance of litigation between the competing groups of companies. These have narrowed down to two, the Union group and the Glenwood group. Neither has been able to close battle on a decisive issue and gain a final victory, although each has won points of local importance. The widespread character of the fields has made it impossible to decide the control of the field by appeal to the courts. The legal difficulties have been threefold in nature. There have been fights by cities to get an adequate supply and into these fights both groups have been drawn. There has been also the question of purity from sulphurated hydrogen and this was before the Legislature. Then there is the question of control of sources of supply and facilities of shipment. The basic reason is that there is not enough good gas to go around. The people of Ontario, particularly of the western half, are alive to the uses of gas, but they will not readily consent to having the sulphur gas foisted upon them. The next development is likely to be purification plants on a large scale, and some of the companies are already promising these. The question of continuity of distribution arises in Ontario more than in southern districts, because of the cold weather. Zero weather almost invariably interferes with the flow, inconveniences the consumers, and militates against the industry.

PETROLEUM IN BRITAIN.

An unprecedented quantity of petroleum products was imported into the British Isles last year. Disregarding the very considerable supplies taken by the Admiralty, the grand totals and the chief sources of the receipts in 1915 and 1914 were as follows:—

	1915. Gallons.	1914. Gallons.
United States	354,920,000	317,750,000
Dutch East Indies	70,620,000	54,000,000
Mexico	40,660,000	31,000,000
Totals, including other countries	475,081,000	459,750,000

Seeing that the 1914 aggregate was a record—in fact, 35,000,000 gallons above 1913—it will be appreciated how vastly the trade progresses. In 1914, 21,250,000 gallons were brought in from Russia; last year only 200 gallons—the effect of war. Similarly, Roumania sent Britain 22,750,000 gallons in 1914, but none at all in 1915. Holland, which shipped 5,250,000 gallons to British ports the year before last, forwarded the insignificant quantity of 135,000 gallons last year. But the cessation of these supplies was more than made up by America and the Far East. The largely increased receipt is gratifying testimony to the British command of the sea. It has been attained despite government requisition of tank steamers and the sinking of a few by the enemy. The main constituents of the grand totals were:—

Kind.	1915. Gallons.	1914. Gallons.
Benzine	146,335,000	120,500,000
Illuminating	141,424,000	146,500,000
Gas	88,089,000	85,500,000
Lubricating	69,974,000	63,750,000
Fuel	27,289,000	36,250,000
Residuals and other	1,970,000	9,000,000

The quantities of the various kinds sent by the main contributors were:

Fuel—	U.S.A.	Dutch E. Indies and Holland.	Mexico.
Benzine—			
1915	60¾	69½	9
1914	43¾	57¼	2½
Illuminating—			
1915	125	..	15¾
1914	116½	..	12¼
Gas—			
1915	84½	..	3½
1914	83½	..	..
Fuel—			
1915	16¼	..	10
1914	18¾	..	15
Lubricating—			
1915	67½	..	2¼
1914	64¾	..	¼

The Dutch East Indies still holds premier place as Britain's benzine supplier; but this source did not increase to as large an extent as the United States did last year; the on-coming of Mexico in the motor spirit department will be noted. Notwithstanding Continental production not being available in 1915, the total illuminating oil imported did not show, as some thought probable, a remarkable decline; the United States and Mexico both sent more. The entrance of Mexico into the British gas oil trade was a feature of last year; until 1915 solar oil users relied solely on the United States. Fuel-fuel consumption has been on a reduced scale. All the lubricating oils come from America, namely, the United States.

Coming to prices, motor spirit shows an advance of 5d. per gallon on the year, including third additional tax; the retail prices in England and Wales finished at 2s. 2d. for No. 1; 2s. 1d. for No. 2 and 2s. for No. 3. Illuminating oil advanced in all 2¾d. per gallon, the basis of standard American, which opened at 7¼d. and closed the year at 10d. The range for lubricating oils at the commencement was £76 9 per ton and at the end £16 5s. @ £18 12s. 6d., as to gravity. Fuel oil advanced from 4d. per gallon naked to 9d. @ 9½d. Gas oil prices have been a matter of negotiation at increasing rates. The Scottish shale oil industry has had a good year—oils, scale, wax and ammonium sulphate all reaching higher levels.

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New York Drug Market

Extensive purchasing of narcotics, anaesthetics, anodynes, analgesics and disinfectants, as well as of numerous crude drugs and medicinal preparations on the part of foreign consumers, which adequately compensated for a rather meager buying movement among domestic handlers and users of these commodities, has made the business record of 1915 in the wholesale drug market an exceptionally good one. With the exception of transactions in opium and the opiates and in cocaine, which were enormously contracted by the operation of the Harrison or Federal narcotic sales regulation law, the diminution of drug buying at home was more than offset by this extraordinary purchasing by European and South American interests, who, in the years preceding the world war, which continued throughout last year, had bought the bulk, if not all their drugs and chemicals in Europe. Cut off from their usual sources of supply by the war abroad, these foreign consumers were compelled to do almost all their drug buying here, with the inevitable result that their takings, combined with the less liberal absorption by domestic consumers, soon reduced the American-held stocks in many lines to very meager proportions. As replenishment of many of the goods thus needed by foreign, as well as by domestic users, was accomplished only with great difficulties, when not impossible of accomplishment, the American supplies in a majority of the departments of the drug market showed depletion and occasional complete exhaustion at the close of the year.

Two lines in which the impossibility of keeping up stocks to proportions fairly commensurate with the demand became most apparent in 1915, were the coal-tar derivatives, used in the manufacture of explosives, disinfectants, flavoring extracts, perfumes and synthetic medicinal compounds, and botanical drugs, especially those of German, Austrian, Hungarian, Russian, Italian, Bulgarian, Serbian, Turkish, Egyptian and Oriental origin.

American Coal-Tar Chemical Industry.

Herculean efforts were put forth early in the year by chemical interests throughout the United States to build up a coal-tar chemical industry, even without the assistance of a protective tariff or government subsidies, which were not actually needed as long as foreign competition was held in abeyance by the conflict in Europe, but it proved an impossible task to develop all the processes of manufacture in the synthetics of coal-tar base, and especially in all the so-called "intermediates" needed in making the finished aniline dyes, synthetic aromatics and medicines, within so brief a period as twelve months. Truly remarkable and most encouraging progress was made in this direction, however, and considerable relief from the hitherto existing shortage in the hydrocarbons—benzol and toluol—as well as in carbolic acid, picric acid, the salicylates, benzoates and antipyretics was afforded by the American enterprises engaged in making these articles before the end of the year. This relief, small as it proved, was sadly needed; as foreign suplies of these goods were almost entirely cut off in the period under review either by absolute or partial embargoes or by such a curtailment of shipping facilities as served virtually to prevent the sending of these commodities from the countries of their original production to this country. Similar shutting off of supplies was noted in the list of botanical drugs of foreign origin, which included almost all the principal articles in this list and no substantial relief was forthcoming on this score from domestic production as the botanical drug output of this country was not materially increased or extended either in quantity or variety of plants grown in the United States and continued virtually limited to the customary harvests of golden seal, lovage and senega roots, saw palmetto and prickly ash berries, cascara sagrada and prickly ash barks and peppermint, spearmint and wormseed oils. At the close of the year, the shortage in botanical products of foreign growth had become most noteworthy in the following articles of Russian, Italian, German, Austrian, East Indian, Chinese and Turkish origin:—

Great Shortage in Crude Drugs.

Russian crude drugs.—Ergot, cantharides, henbane, hemp seed, musk root and lycopodium.

Italian.—Juniper berries, squills, manna, laurel and sage leaves, licorice

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and orris roots, citrate of lime, citric acid, argols, cream of tartar and tartaric acid.

German-Austrian. — Chamomile, arnica, calendula and "insect" flowers, digitalis, sage and laurel leaves, doggrass or couchgrass root, colocynthe apples, borage flowers, burdock root, corn silk and marjoram.

Turkish.—Opium, canary seed, gum tragacanth and poppy seed.

East Indian.—Cannabis indica, cocculus indicus (fish berries), sandalwood and the oil distilled therefrom, Tinnevelly senna leaves, nux vomica, areca nuts, and castor beans or seed and castor oil and numerous spices.

Chinese.—Rhubard root, many spices, anise and cassia oils.

Bulgaria-Serbian.—Opium and otto of rose.

Marked scarcity was also noted in the following botanicals of foreign production:—Gum arabic, liverwort leaves, yerba sants, arrow root, mullein flowers, Curacoa and Barbados aloes, lobelia herb, beth root, bryonia root, quince seed, burgundy pitch, digitalis leaves, Alexandria senna leaves, althea root, lady slipper root, caraway seed, coriander seed, cummin seed, Dutch poppy seed, chillies, nutmegs, black and white peppers, Venice turpentine (made from cloves), belladonna leaves and root, uva ursi, berberis aquifolium root, Cartagena and Rio ipecac root, colombo root, gum euphorbium, mustard seed, sunflower seed, larkspur seed, soap bark, anise seed, buchu leaves, manaca root, pareira brava root, rhatany root, savory leaves, Levant wormseed, millet seed, grains of paradise, colchicum seed, condurango bark, white hellebore root, rape seed, pellitory root, zodeary root, gentian root and foenugreek seed, kola nuts, beeswax, bayberry wax, carnauba or Brazil wax and Ozokerite, ceresin and montan waxes.

As the supplies of the above mentioned botanical products became greatly depleted, without much hope for replenishment, prices for these commodities were naturally marked up sharply, together with those for the coal-tar derivatives, including benzol, toluol, xylol, antipyrine, acetanilid, acetphenetidin, carbolic acid or phenol, salol, sodium salicylate, salicylic acid, sodium benzoate, benzoic acid, made from toluol; synthetic wintergreen oil, or methyl salicylate, artificial mustard and almond oil, myrbane oil, hydroquinone, naphthaline, picric acid, cresol and cresylic acid.

In addition to the articles mentioned above in the botanical drug and coal-tar derivative lists, especially sharp uplifts of prices were also recorded in such commodities as opium and all its manufactured products, including morphine, codeine and heroin or morphine diacetyl, cocaine hydrochloride, saffeine alkaloid and citrate, aloin, resorcin crystals, beechwood creosote, terpineol, formaldehyde, needle antimony, barium dioxide, hydrogen peroxide, balsams copaiba and Peru, strychnine, liquid styrax, bismuth salts, chloral hydrate, chloroform, saccharine, santonine, acetate of lime, acetone, alcohol, borax and boric acid and epsom salts.

Domestic Consumers Small Buyers.

Domestic consumers began buying operations on a fairly large scale at the outset of the year, when they found through their year-end inventories that their stocks had become depleted in many lines, but, after having filled their most pressing needs in many directions they slackened their purchasing until, by March, they were buying little in any part of the drug market. With the enforcement of the Harrison law, at the outset of that month, transactions in opium and the opiates and in cocaine became greatly restricted, but the buying movement among home consumers was extended in other directions until the beginning of the summer. Then purchasing by the home interests flagged once more and never reached normal proportions again during the remainder of the year. Foreign purchasing, however, reached large proportions at the outset of the year and continued to increase throughout the twelvemonth until it embraced almost every article in the list. At the close of the year the largest buyers among the European nations were Italy and Russia, and the leading purchasers among the South American countries were Argentina, Brazil and Peru.

Harrison Law's Restrictive Effect.

Of foremost importance among the developments of nation-wide importance affecting the drug trade was the enforcement of the Harrison law on March 1. A few weeks prior to that date leading importers and manufacturers of opium, cocoa leaves, cocaine and all their derivatives issued notices to their customers that on and after that date the orders of these customers could be filled, under the provisions of that act, only when they were written on an official order form, issued for that purpose by the collector of internal revenue. These houses also informed their customers that these order forms might be obtained by purchasing the same from the internal revenue collectors in their respective districts after they had registered with these officials and had paid the special tax, amounting to 34 cents for the period from March 1 to July 1, and also appended to their notices a list of the articles made by them which were covered in the Harrison law's provisions and the regulations for their enforcement. With the beginning of the enforcement of this Federal narcotic law, moreover, all the importers, manufacturers and other holders of the narcotics in question were compelled to make inventories of the narcotics in question which they had on hand as of March 1, and then have the same verified by notaries public or commissioners of deeds. Traffic in opium and the spices immediately fell off 80 per cent., and although subsequently some of the business in the narcotics was regained, the volume of buying never exceeded 40 per cent. of the heretofore normal business in these lines, despite the extensive buying by foreign consumers.

State Narcotic Legislation.

Later in the year this Federal narcotic law was supplemented by enactments of State Legislature, including those of New York State, New Jersey, Illinois, Iowa and Nebraska. In New York State the need for a law having provisions which conformed to those of the Harrison act was felt early in the year, in order to clear up the existing uncertainty and inconvenience experienced by State drug interests in attempting to comply with the requirements of the existing State narcotic law and those of the Federal enactment. Until this lack of uniformity on several scores was eliminated, New York State drug interests were unable to determine whether to use the New York State Health Department or Internal Revenue Bureau's order blanks, or both, when buying the goods in question. It therefore proved eminently satisfactory to the drug houses and pharmacists of this State when the State Legislature enacted, late in April, the so-called Bloch amendment to the Boylan, or State opium-cocaine law, supplementing the Federal narcotic law in this State, as this act reconciled several hitherto existing points of conflict between State legislation and the Federal law and its enforcement brought forth a ruling by the State Health Department authorities and the Attorney-General authorizing the use of the Federal order blanks, in place of the State Health Department's order forms, when opium or its derivative are to be bought and characterizing the use of the Federal order blanks as "sufficient compliance with the State law." The enactment of the Ostrom bill in the New Jersey Legislature accomplished substantially the same result but, under the new narcotic laws of New York State, order blanks still had to be used when buying chloral and, under the new narcotic act of New Jersey, a State form had to be employed when purchasing cannabis indica, which drug had been embraced in the list of habit-forming drugs whose sale was restricted.

Since the enactment of the Bloch amendment to the Boylan law in New York State and of the Ostrom law in New Jersey, considerable further progress had been made in enacting laws in other States supplementing the Federal law and in the direction of unifying the various State statutes with the national act and a movement is now on foot among the pharmacists of New York State, anti-narcotic leagues and other organizations, with which prominent jurists and legislators are connected, to draft and press for enactment in New York State a model uniform State narcotic law, which will agree in all essential provisions with the Federal law.

New York City's "Patent" Medicine Ordinance.

On the subject of drug legislation of vital interest to the makers of secret-formula remedies throughout the country was the adoption and threatened enforcement by the New York City Health Board of an ordinance, embodied in that board's Sanitary Code, as section 117 thereof, seeking to compel manufacturers of "patent" and proprietary remedies to file with the New York City Health Department the names of the ingredients of their preparations as a prerequisite to selling, offering for sale or giving away these products in this city. This ordinance, which also calls for registration of all such preparations with the New York City Health Department, was adopted before the Health Commissioner had given an opportunity to the various drug interests affected by such a local regulation to be heard in opposition to its enactment. When such a hearing was held representatives of all the local and many of the out-of-town proprietary medicine interests and numerous local wholesale and retail druggists voiced a vehement protest against the enforcement of this ordinance before the Commissioner of Health, who then promised to amend the regulation materially and to submit the new ordinance to the protestants before having the local Health Board adopt the revised provisions. Later the altered provisions were adopted by the Health Board without consulting the interests affected and at the close of the year three local drug houses made application for an injunction to restrain the carrying out of the requirements of this ordinance thereafter to $1 a year. These houses and also began an action to test the constitutionality of this regulation, which is now about to be decided, after an agreement on facts has been reached by the attorneys for the complaining houses and the Corporation Counsel, by the Appellate Division of the Supreme Court.

How the War Helped to Raise Prices

Among other developments of world-wide import, affecting the American drug trade in 1915 were the announcement of an arbitrarily-created war zone, around Great Britain, which was made early in February by the German Government, but which had no immediate effect upon the drug interests of this country aside from raising ocean freight rates considerably; the beginning, in March, of the bombardment of Constantinople and the storming of the forts lining the Dardanelles, which for a time was thought likely to result in the release of large quantities of opium, gum mastic, Smyrna canary seed and other Turkish products, and in consequently lowered prices for these goods, but which failed of any such result, together with the announcements of the imposition by Great Britain, France and Italy of numerous embargoes upon articles used in the manufacture of munitions of war and medicines, which were made at various times throughout the last three-quarters of the year.

The Japanese-Chinese embroglio, early in May, suggested temporarily a cutting off of the primary markets of China and a material curtainment of shipments of drugs and allied products from the Mikado's empire.

The destruction of the steamship Lusitania in May by German submarines also gave rise to a belief that transatlantic transportation would thereafter be greatly restricted and subject to exorbitant war risk insurance charges, and this belief was subsequently found to have been warranted.

Then followed Italy's entrance into the European conflict and a consequent contraction of its shipping facilities from that country and also from Austria, through the ports of Trieste and Fiume, which were thereafter closed to Italian vessels as well as a general crippling of Oriental shipping facilities, due to the conversion of many merchant vessels into auxiliary cruisers and army transports.

Oft-reported closings of the Suez Canal, which appear to have been justified only by the fact that this artificial waterway was actually shut for a few days to all except British steamships, tended to advance the prices named for gum arabic, Alexandria senna leaves, gum tragacanth and numerous other commodities of Egyptian, Syrian and Persian origin, which, it was intimated, would thereafter have to be shipped around the Cape of Good Hope, instead of by the shorter route through the canal. The advance in the articles of Egyptian production was further stimulated by the expulsion by the British-Egyptian Government of German operators in the region of Alexandria and Cairo and from the Soudan district.

Ocean Freight Rates Increase.

Other influences in the direction of higher prices for numerous drugs were found in the raising of ocean freight rates on Japanese products, including menthol, vegetable wax and agar agar, or Japanese gelatine, by way of the Panama Canal and Suez Canal, and the outlook for further interruption of navigation through the latter waterway, which subsequently was realized in the closing of that canal for an indefinite period, in order to eliminate landslides. The imposition of export taxes by the British colonial governments on almost all the drug commodities raised in these colonies, and the placing of a well-nigh prohibitive tax upon all proprietary medicines by the British Government also added materially to the cost of many articles in the drug market.

Absolute and Partial Embargoes.

Most important of the absolute embargoes imposed upon shipments of drug commodities by the foreign governments was that on potash and all potash salts, which was announced by the German Government as effective on February 1, and which has never since been lifted despite numerous reports that some modification of this embargo was contemplated. The French Government also placed a partial embargo upon celery seed in January. The German and British governments imposed an absolute embargo upon toluol at the outset of the year, and the British Government announced an absolute embargo on antimony in April, while the Italian Government placed numerous temporary, and frequently lifted, bans upon shipments of olive oil and squills in March, April, May and thereafter, Great Britain placed a hard and fast embargo on glycerine, unless contracted for before a date early in the year, and a similar absolute embargo upon quinine, effective on and after November 1, but broken in favor of lots purchased prior to that date; and the Newfoundland Government imposed a partial embargo upon the codliver oil of that country. The heavy export taxes imposed upon the products of British colonies were applied with special force to areca nuts, nux vomica, castor beans or seed, sandalwood and sandalwood oil, cannabis indica and cocculus indicus, from India, and to kola nuts from the East Indies.

War Contracts in Drugs.

Among the most notable "war contracts" placed with American manufacturers of coal-tar products and alcohol by foreign nations during 1915 was one in picric acid, which was awarded by the Russian Government to a relatively new American producer, which agreed to deliver 3,100 tons of this acid, in monthly deliveries, running as far ahead as December, 1916, at $1 per pound, the total payment aggregating $6,200,000. Numerous contracts were also placed by the warring nations of Europe with domestic coal-tar product makers for toluol and carbolic acid as well as for picric acid, and several steel concerns in this country announced late in August that they had booked contracts for their entire output of toluol throughout 1916 at figures considerably above those named for deliveries in the second half of 1915.

Also included among the large "war contracts" in the drug and chemical field placed in 1915 was one awarded by a domestic gunpowder company to a leading distiller of denatured alcohol, calling for 60,000,000 pounds of a new product of this manufacturing company which was to be used in the production of gunpowder. Deliveries on this contract were to be made through a period of two and a half to four years. Many other and only slightly smaller contracts were placed for ethyl and wood and denatured alcohol, with the inevitable result that the prices for these spirits soon went soaring skyward.

Many Shipments Held Up.

Hope for substantial relief from the shortage in potash preparations, coal-tar products and botanical drugs through a resumption of shipments from the leading countries of production abroad was abandoned early in the year, after having been revived for a brief period by announcements that ships of American and Scandinavian charters had been engaged especially for the purpose of bringing such goods over from Germany, via Holland, to this country. The steamship Obidense, which was chartered to bring over a large quantity of carbonate of potash and numerous coal-tar products, ran ashore at Ship's Wash, near Harwich, England, while on her return trip to New York from Rotterdam, and the steamship El Paso was so seriously damaged while on her way to Rotterdam with a cargo of American cotton that she had to undergo repairs in a drydock at that port, where she later loaded with a meager cargo of the much-needed German chemicals, not, however, until her original charterers had cancelled their charter and abandoned their plan for relieving the shortage of several kinds of potash salts here.

In the way of further obstacles in the attempted relieving of the shortage of crude drugs in the United States was the capture by British cruisers of the American steamship Ogeechee, as she was starting on a return trip from Bremen with a considerable cargo of German dandelion root, short buchu leaves and several other much-needed botanical goods. A slight relief from the growing scarcity of botanicals was experienced here, however, when the steamship Giuseppe G., from Trieste, reached New York, about the middle of May, with a good-sized cargo of sage, laurel and savory leaves, insect flowers, poppy seed, nux vomica, althea root and gum olibanum, and some further relief was enjoyed from the shortage of Russian goods when the port of Archangel reopened and some arrivals were noted, late in June, of cantharides, ergot, musk root and lycopodium. A few months later, however, this Russian port closed again for the winter, and no new supplies of these articles have since reached here.

OPIUM.

Price movements in this narcotic have been dominated almost entirely by developments in the world war which have affected shipping operations from the producing regions of Turkey and Macedonia, from which the greater part of the gum of medicinal quality is obtained. Despite the enormously restrictive influence of the Harrison law's operation, prices for this gum were marked up almost continuously after the first quarter of the year, in consequence of the cessation of shipping operations, except by most circuitous routes, from the producing districts referred to above, which made it almost impossible to obtain new lots of the medicinal quality of this commodity from any country except Persia. Early in the year prices were marked down steadily, although buying operations were greatly augmented by the purchases of handlers who desired to stock up heavily before the Federal narcotic act became effective on March 1. Stocks here were added to moderately during the first quarter by shipments made through

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Italy, but later shipping operations from Turkey were greatly abridged by the siege of Constantinople, during which all the gum from the interior of Turkey was sent to the Teutonic nations and not permitted to go out to other consuming countries. After the domestic operators in this gum had filled all their prospective requirements for several months ahead, despite the efforts made by the Turkish Government to insure against the sale of this article to the Allied Powers of Europe via the United States, buying operations came to an almost complete halt with the beginning of the enforcement of the Harrison law. Thereafter, with the complete stoppage of shipments from Turkey and only meager shipments from Macedonia, sharp advances occurred in prices even while the demand fell off, as supplies here became slowly reduced. In the last half of the year the upward movement of prices became so pronounced that a runaway market appeared to be impending and, had the buying by foreign consumers of the gum and its derivatives been more active than it was, even higher figures would probably have been reached. As it was, unprecedentedly high levels were attained and the prices asked at the close of the year were the highest ever known. The uplift in the gum was accelerated by estimates that the new crop yield of the Turkish possessions would not amount to half of that for the previous year while almost all the Macedonia crop controlled by Serbian and Bulgarian operators would be shipped, whenever possible to Great Britain and the remainder would probably be bottled up in the producing regions and in Salonika. The appended table shows the early fluctuations and wild upward movement of prices for medicinal quality opium in 1915:—

Opium. Price Record.

The following table shows the high and low prices for the gum in each of the twelve months of last year:—

GUM.

	Per pound	
	High.	Low.
January	$8.90	$8.50
February	8.50	7.65
March	7.65	7.50
April	7.50	7.25
May	7.25	7.00
June	7.25	7.00
July	7.00	6.90
August	7.15	6.90
September	8.25	7.15
October	10.00	8.25
November	11.00	10.00
December	11.00	11.00
Year	11.00	6.90

POWDERED.

	Per pound	
	High.	Low.
January	$10.50	$10.00
February	10.00	9.00
March	9.00	8.75
April	8.60	8.30
May	8.30	8.15
June	8.25	8.15
July	8.25	8.05
August	8.05	8.00
September	9.25	8.00
October	11.25	9.25
November	12.25	11.25
December	12.25	12.25
Year	12.25	8.00

GRANULAR.

	Per pound	
	High.	Low.
January	$11.00	$10.50
February	10.50	9.25
March	9.25	8.90
April	8.90	8.50
May	8.50	8.50
June	8.35	8.25
July	8.35	8.15
August	8.15	8.10
September	9.35	8.10
October	11.50	9.35
November	12.50	11.50
December	12.50	12.50
Year	12.50	8.10

We append the following table showing the crops and the high and low prices for cases on spot since 1870:—

Year.	Crop, cases.	Prices— High.	Low.
1915	7,500	$11.00	$6.90
1914	7,500	10.00	6.00
1913	8,500	6.60	5.60
1912	6,500	8.50	6.00
1911	10,500	8.50	4.70
1910	4,800	6.00	4.80
1909	4,800	6.00	4.00
1908	4,650	5.75	4.85
1907	3,000	7.00	3.45
1906	7,500	3.50	2.72½
1905	3,700	3.30	2.72½
1904	11,200	2.95	2.62½
1903	3,200	3.50	2.70
1902	10,000	3.05	2.70
1901	5,000	3.45	3.00
1900	8,200	3.45	3.00
1899	6,400	3.37½	2.80
1898	3,000	3.75	2.70
1897	7,000	2.85	1.95
1896	3,600	2.40	1.90
1895	7,500	2.30	1.60
1894	4,500	3.25	1.85
1893	2,845	3.15	1.77½
1892	7,500	1.90	1.50
1891	7,400	2.25	1.75
1890	5,300	3.85	2.00
1889	5,500	3.40	2.82½
1888	8,700	3.87½	2.65
1887	7,800	4.60	3.25
1886	7,500	3.25	2.80
1885	7,000	3.90	3.30
1884	5,000	4.10	3.50
1883	6,500	4.12½	3.50
1882	5,500	4.50	3.87½
1881	10,000	6.25	3.90
1880	2,000	7.75	4.87½
1879	4,000	5.25	4.35
1878	5,500	4.70	4.25
1877	9,500	6.70	4.75
1876	3,280	6.60	4.75
1875	6,480	7.75	5.00
1874	2,500	9.00	5.00
1873	3,200	7.90	5.95
1872	4,500	7.90	6.10
1871	7,961	6.00	4.90
1870	4,273	9.40	5.25

An import duty of $1 per pound became operative in July, 1897, and remained in force until August, 1909, when it was increased by 50 cents. In October, 1913, the import duty was doubled, making the existing tariff $3 per pound.

MORPHINE.

The following summary shows the high and low prices of this opium derivative for each month during 1915:—

	Per ounce— High.	Low.
January	$5.00	$5.00
February	5.00	5.00
March	5.00	5.00
April	5.00	5.00
May	5.00	5.00
June	5.00	5.00
July	5.00	5.00
August	5.00	5.00
September	5.00	5.00
October	6.95	5.00
November	6.95	6.95
December	6.95	6.95
Year	6.95	5.00

CODEINE.

The following table of price fluctuations shows the course of quotations for this opiate each month of last year:—

	High.	Low.
	Per ounce—	
January	$6.45	$6.45
February	6.45	6.45
March	6.45	6.45
April	6.45	6.45
May	6.45	6.45
June	6.45	6.45
July	6.45	6.45
August	6.45	6.45
September	6.45	6.45
October	8.60	6.45
November	8.60	8.60
December	8.60	8.60
Year	8.60	6.45

QUININE.

A noteworthy curtailment of cinchona bark shipments from Java to Europe, a curtailment in the allotment of bark to the United States by the Java growers' organization and enormous increased salts requirements of consumers abroad, as well as at home, have combined to advance prices for quinine to the highest figures reached since the Civil War period. From the very outset of the year, when the salts were offered on a bulk basis of 26 cents per ounce, the market manifested a strongly advancing tendency, but it was not until the end of June that the first noteworthy uplift of prices was announced by domestic salts makers. Early in August another sharp advance was announced by these interests, who thereupon felt compelled, in view of the greatly increased cost of the bark and the growing demands of consumers in Europe and in this country, to refuse to book contracts for any except their regular customers. Another sharp advance in salts prices was announced early in September, when the domestic makers held their output for regular customers on a bulk basis of 36 cents, the highest level reached since 1890. At the close of September the domestic makers raised their prices to a basis of 40 cents, and confined the distribution of their output to relieving the pressing needs of customers, and in October they advanced their quotations to a basis of 50 cents, while second hands began to play a more important part in the market with their offerings of "outside" lots, which alone were available for consumers other than the regular customers of the salts makers. Prices asked and obtained for these outside lots were advanced sharply in October to $2, the highest levels recorded since 1887, and finally to $2.35 and $2.50, the highest figures noted since 1864. With the imposition of an absolute embargo upon shipments from Great Britain, effective November 1, the shortage of the salts became acute here, but was relieved to some extent before the end of that month by the arrival of a considerable cargo, which has been contracted for prior to that date, consisting of German salts, which had been bought in New York by English operators who resold them to local handlers after they had been unable to market them in England. Progressively high prices were realized at each of the ten auctions of druggists' quality bark held in Amsterdam last year, and the covenanted minimum price for manufacturing quality bark, offered by the Java growers to the European salts makers on the days immediately preceding the auction sale of the druggists' quality goods, was raised repeatedly.

The following summary records high and low prices for bulk quinine salts on a basis of sulphate, as maintained by makers during the last thirty years:—

	High.	Low.
1915	75	26
1914	31	26
1913	26	19½
1912	19½	14
1911	14	14
1910	14	14
1909	15	14
1908	16	15
1907	22	16
1906	19	14½
1905	23	19
1904	27	21
1903	28	23
1902	28	20
1901	34	27
1900	37	29
1899	40	21
1898	25	18
1897	30	15
1896	27	17½
1895	28	25
1894	27½	25½
1893	25	20
1892	24	20
1891	30	24
1890	37	32
1889	40	32
1888	49	40
1887	61	35
1886	73	49

SUNDRY DRUGS AND MISCELLANEOUS ITEMS.

ALCOHOL.

The following summary of prices shows the high and low basic figures of each month of 1915 for ethyl, methyl and denatured alcohol:—

	Ethyl, 188 proof.		Refined methyl, 95 per ct.		Denatured, 180 per ct.	
	H.	L.	H.	L.	H.	L.
January	2.58	2.58	45	45	33	33
February	2.58	2.52	45	45	33	33
March	2.52	2.50	45	45	33	33
April	2.50	2.50	45	45	33	33
May	2.54	2.50	45	45	36	33
June	2.54	2.54	45	45	38	36
July	2.54	2.54	45	45	38	38
August	2.54	2.54	45	45	38	38
September	2.54	2.54	45	45	39	38
October	2.58	2.54	55	45	45	39
November	2.62	2.58	55	55	45	45
December	2.62	2.62	55	55	50	45
Year	2.62	2.50	55	45	50	33

BENZOL.

The following table shows the high and low prices named for the water white description of this hydrocarbon each month in 1915:—

	Per gallon— 100 per ct.		90 per ct.	
	High.	Low.	High.	Low.
January	$0.40	$0.40	$0.35	$0.35
February	.40	.40	.35	.35
March	1.00	.40	1.00	.35
April	1.25	1.00	1.25	1.00
May	1.25	1.00	1.25	1.00
June	.90	.90	.90	.90
July	.90	.90	.90	.90
August	.90	.85	.90	.85
September	.90	.85	.90	.85
October	.85	.75	.85	.76
November	.90	.75	.90	.75
December	.90	.80	.90	.80
Year	1.25	.40	1.25	.35

BORAX.

In the following table the high and low prices for borax crystals and granulated, in sacks and barrels, are set forth for each month of 1915:—

	Cents per pound— In sacks.		In barrels.	
	High.	Low.	High.	Low.
January	4¼	3¾	4¾	4¼
February	4¼	4¼	4¾	4¾
March	4¼	4¼	4¾	4¾
April	4¼	4¼	4¾	4¾
May	4¼	4¼	4¾	4¾
June	4¾	4¼	5¼	4¾
July	4¾	4¾	5¼	5¼
August	4¾	4¾	5¼	5¼
September	5¼	4¾	5¾	5¼
October	5¾	5¼	6¼	5¾
November	5¾	5¾	6¼	6¼
December	5¾	5¾	6¼	6¼
Year	5¾	3¾	6¼	4¼

CAFFEINE.

The following table of price fluctuations in 1915 shows the high and low figures for caffeine alkaloid in each month throughout the year:—

	Per pound— High.	Low.
January	$4.25	$3.65
February	3.70	3.65
March	3.70	3.65
April	3.65	3.65
May	4.35	3.65
June	4.75	4.35
July	7.50	4.75
August	9.00	7.50
September	10.25	9.00
October	10.50	10.25
November	11.50	10.50
December	11.50	11.50
Year	11.50	3.65

COCOA BUTTER.

In the following table the high and low prices for cocoa butter are given for each month of 1915:—

	Cents per pound.— Bulk.		Wrapped fingers in 12-lb. boxes.	
	High.	Low.	High.	Low.
January	32	28	34	32
February	28	27	34	34
March	30	29	34	32½
April	30½	29	32½	32½
May	30½	30	32½	32
June	30	30	32½	32
July	30	28	32½	30
August	30	29	32	32
September	29	28	32	32
October	32½	28	37	32
November	40	32½	40	37
December	40	35	40	36
Year	40	27	40	30

CODLIVER OIL.

As a basis for comparison with the result of the ten previous years we append the following table, showing the production of Lofot n and total Norway oil, the total catch of fish in millions and the ruling basis for shipments of medicinal oil at the close of the season:—

	Lofoten, final hectoliters.	Total Norway, final hectoliters.	Fish, millions, total.	Quotations, f. o. b. Norway.
1915	10,905	45,620	14	$20.50@82.50
1914	9,619	57,200	81½	17.50
1913	6,000	48,300	76	24.00
1912	12,000	76,200	99	14.00
1911	7,900	43,300	64½	26.00
1910	13,500	41,000	55¾	25.00
1909	20,000	50,400	66½	15.00
1908	20,100	59,100	48¾	13.50
1907	20,400	46,400	47¾	17.50
1906	17,000	42,000	46½	16.00
1905	11,500	41,900	45	16.00
1904	3,300	17,500	50	40.00
1903	600	2,800	48	120.00

We also append the following summary of high and low quotations for Norwegian during the last three years:—

	1913 H.	1913 L.	1914 H.	1914 L.	1915 H.	1915 L.
Jan	21.50	21.50	23.00	23.00	21.50	20.50
Feb	24.00	21.50	23.00	20.00	24.00	21.50
Mar	28.00	24.00	18.50	16.50	40.00	24.00
Apr	28.00	25.00	17.00	16.50	39.00	37.00
May	25.00	24.50	17.00	16.00	42.00	35.00
June	24.50	23.50	18.00	17.00	45.00	40.00
July	24.00	23.50	17.00	17.00	75.00	45.00
Aug	25.00	24.00	20.00	17.00	80.00	70.00
Sept	26.00	25.00	22.00	20.00	82.50	80.00
Oct	25.00	24.00	19.00	18.00	82.50	80.00
Nov	24.00	24.00	18.00	17.50	80.00	77.50
Dec	24.00	23.00	20.00	17.50	80.00	76.00
Year	28.00	21.50	26.00	16.00	82.50	20.50

A record of the high and low prices asked for Newfoundland codliver oil in the New York market in 1915 follows:—

	High.	Low.
January	....	....
February	....	....
March	....	....
April	....	....
May	....	....
June	....	....
July	60.00	40.00
August	70.00	60.00
September	65.00	65.00
October	70.00	65.00
November	65.00	63.00
December	63.00	60.00
Year	70.00	40.00

Total exports for the year amounted to 104,000 barrels, as against 53,080 barrels in the previous year.

CORN SYRUP AND CORN SUGAR.

The high and low figures for corn syrup and corn sugar in each month of last year are set forth in the following table:—

	Per 100 pounds— Corn syrup, 42 degrees.		Corn sugar, "pure food."	
	High.	Low.	High.	Low.
January	$2.42	$2.11	$2.56	$2.15
February	2.52	2.42	2.56	2.40
March	2.22	2.22	2.26	2.16
April	2.42	2.22	2.36	2.16
May	2.42	2.42	2.36	2.36
June	2.42	2.32	2.36	2.26
July	2.52	2.42	2.46	2.36
August	2.52	2.42	2.46	2.36
September	2.52	2.12	2.46	2.06
October	2.12	2.02	2.06	1.96
November	2.12	2.12	2.06	2.06
December	2.26	2.12	2.16	2.06
Year	2.52	2.02	2.56	1.96

CUMARIN.

The following table shows the high and low figures reached by cumarin each month in 1915:—

	Per pound— High.	Low.
January	$3.20	$3.20
February	3.40	3.20
March	5.50	3.50
April	4.55	4.25
May	5.50	4.25
June	5.75	5.50
July	6.00	5.50
August	6.50	6.00
September	7.50	6.50
October	7.50	7.25
November	7.25	6.75
December	7.00	6.75
Year	7.50	3.20

ERGOT.

In the appended table there will be found the high and low prices reached by Russian and Spanish ergot each month in 1915:—

	Price per pound— Russian.		Spanish.	
	High.	Low.	High.	Low.
January	$0.90	$0.85	$0.90	$0.85
February	.95	.90	1.00	.90
March	.87½	.87½	1.00	.87½
April	1.00	.87½	1.00	.87½
May	.95	.95	.95	.95
June	.95	.90	.95	.95
July	.95	.85	.95	.85
August	.80	.75	.85	.80
September	.80	.75	.85	.85
October	.75	.67½	.85	.85
November	.75	.67½	.85	.85
December	.75	.75	.85	.85
Year	1.00	.67½	1.00	.80

FUSEL OIL.

In the subjoined table will be found the high and low figures reached for crude and refined fusel oil in each month of the last year:—

	Domestic— Crude, per pound.		Refined, per pound.	
	High.	Low.	High.	Low.
January	$2.20	$2.00	$2.75	$2.60
February	2.25	2.00	2.75	2.75
March	2.25	2.25	2.85	2.75
April	2.25	2.25	2.85	2.85
May	2.25	2.25	2.85	2.85
June	2.40	2.25	3.25	2.85
July	2.25	2.25	3.25	3.25
August	2.40	2.25	3.25	3.25
September	2.75	2.40	3.75	3.25
October	2.90	2.65	4.00	3.25
November	3.20	2.90	4.50	4.00
December	3.45	3.20	5.25	4.50
Year	3.45	2.00	5.25	2.60

GLYCERINE.

The following summary shows the prevailing range of high and low quotations for C. P. glycerine during 1915:—

GLYCERINE, C. P.

	Cents per lb. High.	Low.
January	22	22
February	22	22
March	21½	20
April	20	19¼
May	21	19¼
June	22	21
July	24	21
August	24	22
September	29	24
October	60	29
November	65	60
December	65	52½
Year	65	19¼

A record of the highest and lowest figures for the four previous years follows:—

	High.	Low.		High.	Low.
1914	27	19¾	1912	20	16
1913	21	18¾	1911	25½	17½

HARLEM OIL.

The following table of price fluctuations in 1915 shows the high and low figures for each month throughout the year:—

	Per gross bottles— High.	Low.
January	$2.70	$2.25
February	2.25	2.25
March	2.25	2.10
April	2.10	2.10
May	2.10	2.10
June	2.25	2.10
July	2.25	2.25
August	2.25	2.10
September	2.10	2.05
October	2.05	1.98
November	2.00	1.95
December	2.00	2.00
Year	2.70	1.95

HYPOPHOSPHITES.

In the following table the high and low prices for hypophosphites of lime, potash and soda are set forth for each month of 1915:—

	Cents per pound— Lime.		Potash.		Soda.	
	H.	L.	H.	L.	H.	L.
January	77	77	92	92	82	82
February	77	77	92	92	82	82
March	77	77	92	92	82	82
April	77	77	92	92	82	82
May	77	77	92	92	82	82
June	77	77	92	92	82	82
July	77	77	92	92	82	82
August	77	77	92	92	82	82
September	77	77	92	92	82	82
October	77	77	92	92	82	82
November	77	77	92	92	82	82
December	77	77	92	92	82	82
Year	77	77	92	92	82	82

LYCOPODIUM.

In the following table the high and low prices for lycopodium are given for each month of 1915:—

	Per pound— High.	Low.
January	$1.00	$0.70
February	1.00	1.00
March	1.00	1.00
April	1.00	1.00
May	1.00	1.00
June	1.00	.90
July	.90	.85
August	.90	.90
September	1.00	.90
October	1.05	1.00
November	1.50	1.05
December	1.75	1.50
Year	1.75	.70

MANNA.

The following table shows the high and low figures reached for large and small flake manna in each month of 1915:—

	Per pound—Large.		Small.	
	High.	Low.	High.	Low.
January	$0.70	$0.70	$0.42	$0.42
February	70	70	42	42
March	70	70	42	37½
April	70	65	37½	37½
May	80	70	44	37½
June	80	80	44	44
July	80	80	45	40
August	80	70	45	40
September	75	75	52	39
October	1.10	75	1.00	52
November	1.10	1.00	1.00	95
December	1.25	1.10	95	85
Year	1.25	65	1.00	37½

MENTHOL.

The following summary shows the high and low prices for each month during the last year:—

	Per pound— High.	Low.
January	$2.55	$2.50
February	3.10	2.55
March	3.10	2.90
April	2.90	2.80
May	2.80	2.75
June	2.75	2.70
July	2.70	2.50
August	2.60	2.50
September	2.65	2.60
October	3.50	2.60
November	3.50	3.25
December	3.25	3.05
Year	3.50	2.50

High and low quotations for the years 1895 to 1915 follow:—

	High.	Low.		High.	Low.
1895	$4.75	$4.00	1906	$2.90	$2.15
1896	4.75	2.50	1907	2.60	1.90
1897	4.20	1.85	1908	2.15	1.85
1898	2.60	2.00	1909	2.75	2.05
1899	3.00	1.20	1910	3.45	2.60
1900	3.90	2.35	1911	7.00	3.45
1901	4.75	3.50	1912	14.00	6.00
1902	7.00	3.80	1913	10.25	2.70
1903	8.00	5.25	1914	4.75	2.35
1904	6.25	2.50	1915	3.50	2.50
1905	3.00	1.75			

NUX VOMICA.

In the appended table there will be found the high and low prices for whole nux vomica reached each month in 1915:—

	Cents per lb.— High.	Low.
January	6	5½
February	5½	5½
March	5½	5
April	5	5
May	5	5
June	7	5½
July	5½	5½
August	5½	5½
September	5⅝	5½
October	6	6
November	6	6
December	6	6
Year	7	5

PERMANGANATE OF POTASH.

In the subjoined table will be found the high and low figures reached by potassium permangante in each month of the last year:—

	High.	Low.
January	$0.14	$0.14
February	.25	.14
March	.55	.30
April	.55	.52½
May	.62	.55
June	.75	.62
July	1.05	.70
August	1.15	.97½
September	1.15	1.02½
October	1.30	1.10
November	1.75	1.25
December	1.50	1.30
Year	1.75	.14

QUICKSILVER.

The high and low figures for quicksilver in flask and jobbing lots in each month of last year are set forth in the following table:—

	Per flask of 75 pounds. High.	Low.	Per pound. High.	Low.
January	$55.00	$50.00	$0.85	$0.80
February	56.00	55.00	.85	.80
March	85.00	56.00	1.20	.85
April	85.00	80.00	1.20	1.00
May	80.00	74.00	1.20	1.00
June	95.00	80.00	1.23	1.20
July	100.00	90.00	1.30	1.30
August	95.00	90.00	1.35	1.30
September	90.00	88.00	1.35	1.25
October	115.00	92.00	1.35	1.25
November	115.00	100.00	1.55	1.55
December	140.00	105.00	1.85	1.55
Year	140.00	50.00	1.85	.80

MERCURIALS.

Hard.

In the appended table there will be found the high and low prices for 50-pound lots reached each month in 1915 by the hard mecurials—calomel, bisulphate of mercury and red and white percipitates:—

CALOMEL. (American.)

	High.	Low.
January	$0.88	$0.88
February	.97	.88
March	.99	.97
April	.99	.99
May	1.14	.99
June	1.35	1.14
July	1.43	1 24
August	1.43	1.40
September	1.40	1.40
October	1.40	1.40
November	1.51	1.40
December	1.61	1.51
Year	1.61	.88

	Mercury bisulphate. High.	Low.	Precipitates— Red. High.	Low.	White. High.	Low.
January	$0.72	$0.72	$1.00	$1.00	$1.05	$1.05
February	.81	.72	1.00	1.00	1.14	1.05
March	.81	.81	1.09	1.09	1.14	1.14
April	.81	.81	1.09	1.09	1.14	1.14
May	.96	.81	1.24	1.09	1.29	1.14
June	1.13	.96	1.48	1.24	1.58	1.29
July	1.21	1.13	1.56	1.48	1.66	1.58
August	1.21	1.21	1.56	1.56	1.66	1.66
September	1.21	1.21	1.56	1.56	1.66	1.66
October	1.21	1.21	1.56	1.56	1.66	1.66
November	1.20	1.21	1.64	1.56	1.74	1.66
December	1.39	1.29	1.74	1.64	1.84	1.74
Year	1.39	.72	1.74	1.00	1.84	1.05

Soft.

In the subjoined table will be found the high and low figures reached by the soft mercurials—blue mass and mercurial ointments—in each month of the last year:—

	Per pound— Blue mass. High.	Low.	Mercurial ointment. 33⅓% High.	Low.	50% High.	Low.
January	$0.56	$0.56	$0.52	$0.52	$0.62	$0.62
February	.56	.56	.52	.52	.62	.62
March	.56	.56	.52	.52	.62	.62
April	.56	.56	.68	.52	.78	.62
May	.61	.56	.69	.68	.79	.78
June	.69	.61	.77	.69	.87	.79
July	.72	.69	.80	.77	.90	.87
August	.72	.72	.80	.80	.90	.90
September	.72	.72	.80	.80	.90	.90
October	.72	.72	.80	.80	.90	.90
November	.75	.72	.83	.80	.93	.90
December	.81	.75	.89	.83	.99	.93
Year	.81	.56	.89	.52	.99	.62

ROCHELLE SALTS AND SEIDLITZ MIXTURE.

The following table shows the high and low figures reached by the rochelle salts and seidlitz mixture in each month of 1915:—

	Cents per pound— Rochelle salts. High.	Low.	Seidlitz mixture. High.	Low.
January	20	20	16½	16½
February	20	18¾	16½	15½
March	21	18¾	17½	15½
April	21	21	17½	17½
May	23½	21	19	17½
June	25	23½	20	19
July	26	25	20½	20
August	27	26	21	20½
September	27	27	21	21
October	28¼	27	22	21
November	28½	28½	22	22
December	29½	28½	23	22
Year	29½	18¾	23	15½

SACCHARINE.

In the following table the high and low prices of saccharine are set forth for each month of 1915:—

	Per pound— High.	Low.
January	$2.85	$2.50
February	2.50	2.15
March	4.00	2.15
April	2.60	2.25
May	2.75	2.25
June	4.00	2.75
July	4.50	4.00
August	7.75	4.50
September	8.50	7.75
October	8.50	8.50
November	11.50	8.50
December	11.50	11.50
Year	11.50	2.15

SALOL.

In the following table the high and low prices asked for salol, in bulk, by domestic manufacturers of regular customers and by second hands for outside lots are given for each month of 1915:—

	Per pound— Manufacturers'. High.	Low.	Second hands. High.	Low.
January	$1.00	$1.00	$1.00	$1.00
February	1.10	1.00	1.10	1.00
March	1.10	1.10	1.10	1.00
April	1.10	1.10	1.10	1.10
May	2.00	1.10	2.75	2.75
June	2.00	1.75	3.25	3.25
July	1.75	1.75	3.75	3.50
August	2.25	1.75	6.25	4.25
September	2.75	2.25	6.25	5.50
October	2.75	2.75	8.00	6.25
November	2.75	2.75	9.00	9.00
December	2.75	2.75	9.25	9.00
Year	2.75	1.00	9.25	1.00

SANTONINE.

The following table of price fluctuations in 1915 shows the high and low figures for santonine crystals, in bulk, in each month throughout the year:—

	Per pound— High.	Low.
January	$40.00	$40.00
February	40.00	40.00
March	40.00	40.00
April	40.00	40.00
May	47.50	40.00
June	60.00	47.50
July	60.00	45.00
August	45.00	45.00
September	45.00	40.00
October	40.00	40.00
November	42.00	40.00
December	42.00	38.00
Year	60.00	38.00

BENZOATE OF SODA.

The high and low figures for sodium benzoate for each month of last year are set forth in the following table:—

	Price per lb.— High.	Low.
January	$0.80	$0.50
February	1.00	.80
March	1.90	1.30
April	1.90	1.80
May	2.00	1.85
June	2.50	2.00
July	2.90	2.50
August	3.25	2.90
September	3.50	3.15
October	3.50	3.25
November	3.75	3.50
December	3.75	3.75
Year	3.75	.50

STRYCHNINE.

The following table shows the high and low figures for strychnine sulphate in each month of 1915:—

CRYSTALS, BULK.

	Cents per ounce— High.	Low.
January	40	40
February	40	40
March	50	40
April	50	50
May	60	50
June	60	60
July	60	60
August	60	60
September	70	60
October	70	70
November	70	70
December	70	70
Year	70	40

SUGAR OF MILK.

In the appended table there will be found the high and low prices for powdered sugar of milk reached each month in 1915:—

	Cents per pound— High.	Low.
January	15	12
February	14	14
March	14	14
April	14	14
May	14	14
June	14	14
July	14	14
August	14	13½
September	14	14
October	14	14
November	14	14
December	15	12

TARTAR EMETIC.

In the subjoined table will be found the high and low figures for the technical grade in casks reached in each month of the last year:—

	Cents per pound— High.	Low.
January	37	35
February	37	36
March	36	36
April	36	36
May	38	36
June	44½	38
July	44½	44½
August	45	44½
September	45	45
October	47	45
November	47	47
December	47	47
Year	47	35

THYMOL.

The high and low figures for thymol in each month of last year are set forth in the following table:—

	Per pound— High.	Low.
January	$6.50	$6.25
February	6.75	6.50
March	7.00	6.75
April	7.00	7.00
May	8.50	7.00
June	9.00	8.75
July	12.00	9.00
August	10.00	9.00
September	12.00	9.00
October	12.00	12.00
November	12.00	12.00
December	12.00	12.00
Year	12.00	6.25

TOLUOL.

The following table shows the high and low figures reached by pure toluol each month in 1915:—

	Per gallon— High.	Low.
January	$0.40	$0.40
February	.40	.40
March	4.00	.40
April	5.00	4.00
May	5.00	4.00
June	4.00	2.50
July	4.00	2.50
August	5.00	2.50
September	5.00	4.00
October	4.00	4.00
November	4.50	4.00
December	4.75	4.50
Year	5.00	.40

ACIDS.

Citric and the Citrates.

Below are set forth the high and low prices for citric acid and the citrates in each month of 1915:—

CITRIC ACID.

	Per pound— Manufacturers' prices for crystals, in barrels. H.	L.	Second-hand prices for crystals, in barrels. H.	L.
January	$0.55	$0.55	$0.60	$0.60
February	.55	.55	.65	.60
March	.55	.55	.65	.60
April	.55	.55	.65	.60
May	.55	.55	1.00	.75
June	.55	.55	1.00	.75
July	.55	.55	.80	.55
August	.55	.55	.55	.55
Sepember	.55	.55	.55	.55
October	.55	.55	.55	.55
November	.55	.55	.58	.55
December	.59	.55	.62	.58
Year	.59	.55	1.00	.55

CITRATES, ON BASIS OF IRON CITRATE, U. S. P.

	High.	Low.
January	$0.66	$0.66
February	.66	.66
March	.66	.66
April	.66	.66
May	.66	.66
June	.66	.66
July	.66	.66
August	.66	.66
September	.66	.66
October	.66	.66
November	.66	.66
December	.69	.66
Year	.69	.66

Carbolic.

The following table shows the high and low figures reached by U. S. P. phenol in each month of 1915:—

	Per pound— In drums. H.	L.	In 1-lb. bottles. H.	L.
January	$0.90	$0.50	$1.00	$0.50
February	1.10	.90	1.15	1.00
March	1.20	1.10	1.20	1.10
April	1.10	1.00	1.10	1.05
May	1.40	1.05	1.40	1.05
June	1.50	1.40	1.50	1.40
July	1.50	1.50	1.50	1.50
August	1.50	1.40	1.50	1.40
September	1.50	1.40	1.50	1.40
October	1.75	1.50	1.75	1.50
December	1.65	1.35	1.65	1.35
Year	1.75	.50	1.75	.50

Picric.

In the following table the high and low prices for picric acid are set forth for each month of 1915:

	Per pound— High.	Low.
January	$1.60	$1.60
February	1.60	1.60
March	1.70	1.60
April	1.75	1.70
May	1.75	1.40
June	1.40	1.40
July	1.40	1.40
August	1.75	1.40
September	1.75	1.75
October	1.75	1.50
November	1.50	1.50
December	1.50	1.50
Year	1.75	1.40

Salicylic.

The following table of price fluctuations in 1915 shows the high and low figures for salicylic acid in each month throughout the year:—

	Per pound— High.	Low.
January	$1.00	$0.67½
February	1.25	.90
March	1.40	1.30
April	1.40	1.40
May	1.70	1.35
June	2.50	1.70
July	2.75	2.50
August	2.75	2.75
September	3.35	3.15
October	3.35	3.35
November	3.75	3.35
December	4.00	3.75
Year	4.00	.67½

Tannic.

In the following table the high and low prices for tannic acid are set forth for each month of 1915:—

	Per pound— U. S. P. bulk. High.	Low.
January	$0.65	$0.65
February	.65	.65
March	.65	.65
April	.65	.65
May	.65	.65
June	.65	.65
July	.70	.65
August	.80	.70
September	.80	.80
October	.80	.80
November	.80	.80
December	.80	.80
Year	.80	.65

BALSAMS.

Copaiba.

The following table shows the range of quotations for natural South American and Para balsam copaiba for each month in 1915:—

	Genuine— South American. High.	Low.	Para. High.	Low.
January	$0.36	$0.35	$0.35	$0.32
February	.35	.34	.32	.31
March	.34	.34	.32	.31
April	.36	.35	.33	.32
May	.36	.35	.33	.32
June	.36	.35	.33	.32
July	.36	.34	.32	.31
August	.36	.34	.32	.31
September	.36	.34	.32	.31
October	.40	.36	.40	.32
November	.46	.38	.45	.34
December	.46	.45	.45	.43
Year	.46	.34	.45	.31

Fir Balsam.

In the following table the high and low prices for Canada and Oregon fir balsam are given for each month of 1915:—

	Per gallon— Canada. High.	Low.	Oregon. High.	Low.
January	$7.00	$6.90	$0.75	$0.75
February	6.90	6.50	.75	.70
March	6.50	6.40	.70	.70
April	6.40	6.00	.70	.70
May	6.00	6.00	.70	.70
June	6.00	5.50	.70	.70
July	5.50	5.40	.70	.70
August	5.40	5.40	.70	.65
September	5.40	5.00	.70	.65
October	5.00	5.00	.65	.65
November	5.00	5.00	.65	.65
December	5.00	5.00	.65	.65
Year	7.00	5.00	.75	.65

Balsam Peru.

Below are set forth the high and low prices for balsam Peru in each month of 1915:—

	Per pound— High	Low.
January	$1.55	$1.55
February	2.25	1.55
March	2.65	2.25
April	4.00	2.65
May	3.85	3.25
June	3.85	3.75
July	3.75	3.50
August	4.00	3.75
September	4.25	3.75
October	4.25	4.00
November	4.75	4.20
December	5.25	4.75
Year	5.25	1.55

Balsam Tolu.

Below are set forth the high and low prices for balsam tolu in each month of 1915:—

	Per pound— High.	Low.
January	$0.45	$0.42½
February	.42½	.38
March	.42½	.39
April	.45	.40
May	.45	.40
June	.40	.40
July	.40	.40
August	.40	.39
September	.39	.39
October	.39	.39
November	.40	.38
December	.38	.38
Year	.45	.38

BARKS.

Condurango.

Below are set forth the high and low prices for condurango bark in each month of 1915:—

	Per pound— High.	Low.
January	$0.12	$0.12
February	.12	.12
March	.20	.12
April	.25	.20
May	.40	.25
June	.40	.25
July	.25	.25
August	.25	.25
September	.25	.25
October	.25	.25
November	.25	.25
December	.25	.25
Year	.40	.12

Cascara Sagrada.

The following table shows the highest and lowest prices by months during the last year, based on the figures for new bark, older goods usually bringing a premium of 1@3c.

	Per pound— High	Low.
January	$0.07½	$0.07½
February	.07¾	.07½
March	.07¾	.07¾
April	.07¾	.07¾
May	.07¾	.07¾
June	.07¾	.07¾
July	.07¾	.07¾
August	.07¾	.07¾
September	.07	.07
October	.07	.07
November	.07	.07
December	.07	.06½
Year	.07¾	.06½

Cottonroot.

Below are set forth the high and low prices for cottonroot bark in each month of 1915:—

	Per pound— High.	Low.
January	$0.07½	$0.07½
February	.07½	.07½
March	.07½	.07½
April	.07½	.07½
May	.07½	.07½
June	.07½	.07½
July	.07½	.07½
August	.07½	.07½
September	.07½	.07½
October	.07½	.07½
November	.07½	.07½
December	.07½	.07½
Year	.07½	.07½

Elm.

The following table shows the high and low prices for each month of 1915 for elm bark:—

	Per pound— High.	Low.
January	$0.22	$0.20
February	.20	.20
March	.20	.20
April	.20	.20
May	.20	.20
June	.20	.20
July	.20	.20
August	.20	.18
September	.18	.18
October	.18	.17½
November	.18	.18
December	.18	.18
Year	.22	.17½

Lemon Peel.

Below are set forth the high and low prices for lemon peel in each month of 1915:—

	Per pound	
	High.	Low.
January	$0.05	$0.05
February	.05	.05
March	.05	.05
April	.05	.05
May	.05	.05
June	.05	.05
July	.05	.05
August	.05	.05
September	.05	.05
October	.05	.05
November	.05	.05
December	.05	.05
Year	.05	.05

Prickly Ash.

In the following table the high and low prices for prickly ash bark are given for each month of 1915:—

	Per pound—Northern and Southern	
	High.	Low.
January	$0.12	$0.12
February	.12	.12
March	.12	.12
April	.12	.12
May	.12	.12
June	.12	.12
July	.12	.12
August	.12	.11
Septcmber	.11	.11
October	.11	.10
November	.10	.10
December	.10	.10
Year	.12	.10

Soap.

Below are set forth the high and low prices for soap bark in each month of 1915:—

	Whole		Cut		Crushed	
	H.	L.	H.	L.	H.	L.
Jan.	$0.06	$0.06½	$0.13	$0.12	$0.12	$0.12
Feb.	.08½	.08½	.13	.13	.12	.12
March	.08½	.08½	.16	.13	.12	.11½
April	.10	.08½	.24	.16	.12	.11
May	.10	.09	.24	.15	.11	.11
June	.09	.08¾	.15	.14	.11	.10½
July	.08¾	.07¾	.15	.13	.10½	.09
August	.07¾	.07½	.15	.13	.09	.09
Sept	.07¾	.07½	.15	.13	.09	.09
Oct	.07¾	.07¾	.15	.15	.09	.09
Nov	.07¾	.07¾	.15	.15	.09	.09
Dec	.07¾	.07¾	.15	.15	.09	.09
Year	.10	.07½	.24	.12	.12	.09

Wahoo.

The following table shows the high and low prices for each month of 1915 for wahoo bark of root and tree:—

	Per pound—Bark of root.		Bark of tree.	
	High.	Low.	High.	Low.
January	$0.36	$0.36	$0.12	$0.12
February	.36	.36	.12	.12
March	.36	.36	.12	.12
April	.36	.36	.12	.12
May	.36	.33	.12	.12
June	.33	.33	.12	.12
July	.33	.33	.12	.12
August	.33	.33	.12	.12
September	.33	.33	.12	.12
October	.33	.33	.12	.12
November	.33	.33	.12	.12
December	.33	.33	.12	.12
Year	.36	.33	.12	.12

BERRIES.

Cubebs.

The following table shows the high and low prices in each month of 1915 for cubeb berries:—

	Per pound—Ordinary.		XX.		Powdered.	
	H.	L.	H.	L.	H.	L.
January	$0.47	$0.47	$0.52½	$0.52½	$0.50	$0.50
February	.47	.45	.52½	.50	.50	.47½
March	.45	.45	.50	.50	.47½	.42½
April	.45	.45	.50	.50	.47½	.47½
May	.45	.45	.50	.50	.47½	.47½
June	.45	.45	.50	.50	.47½	.47½
July	.45	.42½	.50	.47½	.47½	.47½
August	.45	.42½	.50	.47½	.47½	.45
September	.42½	.42½	.47½	.47½	.45	.45
October	.42½	.42½	.47½	.47½	.45	.45
November	.42½	.42½	.47½	.47½	.45	.45
December	.42½	.42½	.47½	.47½	.45	.45
Year	.47	.42½	.52½	.47½	.50	.42½

Juniper.

Below are set forth the high and low prices for juniper berries in each month of 1915:—

	Per pound	
	High.	Low.
January	$0.03½	$0.03½
February	.03¾	.03¼
March	.03¾	.03¼
April	.03¼	.03¼
May	.04½	.03¼
June	.04½	.04½
July	.04½	.03¼
August	.03½	.03¼
September	.03¾	.03¼
October	.03¾	.03¼
November	.03¾	.03¼
December	.04	.03½
Year	.04	.03¼

Prickly Ash.

In the following table the high and low prices for prickly ash berries are given for each month of 1915:—

	Per pound	
	High.	Low.
January	$0.15	$0.15
February	.15	.12
March	.15	.12
April	.15	.15
May	.15	.13
June	.13	.13
July	.13	.13
August	.14	.13
September	.14	.14
October	.14	.14
November	.14	.14
December	.14	.13
Year	.15	.12

CALABAR BEANS.

In the following table the high and low prices for calabar beans are given for each month of 1915:—

	High.	Low.
January	$0.25	$0 20
February	.20	.20
March	.20	.20
April	.20	.20
May	.20	.20
June	.20	.20
July	.20	.20
August	.20	.20
September	.20	.20
October	.20	.20
November	.20	.20
December	.20	.20
Year	.25	.20

TONKA BEANS.

Below are set forth the high and low prices for tonka beans in each month of 1915:—

	Per pound—Angostura.		Para.		Surinam.	
	High.	Low.	High.	Low.	High.	Low.
January	$1.50	$1.50	$0.85	$0.85	$0.90	$0.90
February	1.50	1.10	.83	.75	.90	.85
March	1.10	1.10	.75	.75	.85	.85
April	1.10	1.10	.75	.75	.85	.85
May	1.10	.90	.75	.75	.85	.85
June	.90	.90	.75	.65	.85	.85
July	.90	.90	.65	.65	.85	.85
August	.90	.90	.65	.65	.85	.75
September	.90	.90	.65	.65	.75	.75
October	.90	.90	.65	.65	.75	.75
November	.90	.90	.65	.65	.75	.75
December	.90	.90	.65	.65	.75	.75
Year	1.50	.90	.85	.65	.90	.75

VANILLA BEANS.

Comparison of three leading kinds.

Below are set forth the high and low prices for Mexican, Bourbon and Tahiti vanilla beans in each month of 1915:—

	Per pound—Mexican, Whole. Range, as to quality.	Bourbon. As to quality.	Tahiti. Green label. As to quality.
January	$3.50@2.75	$3.50@2.50	$1.90@1.50
February	2.75@2.75	2.50@2.50	1.50@1.50
March	2.75@2.70	2.50@2.50	1.40@1.40
April	2.75@2.50	2.50@2.25	1.50@1.40
May	2.75@2.50	2.25@2.25	1.50@1.50
June	2.75@2.75	2.25@2.25	1.50@1.35
July	2.75@2.50	2.25@2.25	1.35@1.35
August	2.75@2.62½	2.25@2.25	1.35@1.35
September	2.75@2.62½	2.25@2.25	1.35@1.35
October	3.50@2.75	2.60@2.25	1.35@1.30
November	3.50@3.50	2.50@2.50	1.30@1.25
December	3.75@3.50	2.50@2.50	1.45@1.25
Year	3.75@2.50	3.50@2.25	1.90@1.25

MEXICAN.

Whole.

A summary of the high and low prices for Mexican whole beans during recent years follows, the basis being the cheapest goods on the market:—

MEXICAN WHOLE BEANS.

	Per pound	
	High.	Low.
1900	$11.00	$9.00
1901	9.00	6.75
1902	6.75	4.75
1903	6.50	5.00
1904	5.00	3.75
1905	3.50	2.75
1906	2.75	2.75
1907	4.25	2.75
1908	4.25	3.00
1909	3.25	2.75
1910	3.37½	2.75
1911	4.00	2.75
1912	5.00	3.50
1913	4.00	3.62½
1914	5.00	3.50
1915	3.75	2.50

Cuts.

A comparison of quotations for Mexican cuts in the local trade is afforded by the following summary:—

MEXICAN CUTS.

	Per pound	
	High.	Low.
1900	$9.00	$7.75
1901	8.00	5.75
1902	5.75	3.25
1903	4.00	3.50
1904	3.50	2.50
1905	2.50	1.50
1906	2.15	1.75
1907	3.87½	2.00
1908	3.75	2.00
1909	2.62½	2.25
1910	3.12½	2.25
1911	3.75	2.37½
1912	3.85	3.20
1913	3.25	3.20
1914	3.50	2.75
1915	3.25	2.25

BOURBON BEANS.

The following table shows the high and low levels of Bourbon vanilla beans in the local market during the last fifteen years:—

BOURBON BEANS.

	Per pound	
	High.	Low.
1900	$4.50	$4.00
1901	4.75	3.00
1902	3.00	2.50
1903	2.50	1.50
1904	1.50	1.50
1905	1.50	1.00
1906	1.50	1.00
1907	3.00	1.25
1908	3.00	1.50
1909	3.00	1.75
1910	3.00	2.75
1911	3.75	2.75
1912	4.50	3.00
1913	3.10	2.75
1914	4.50	2.75
1915	3.50	2.25

ESSENTIAL OILS.

ALMOND.

Below are set forth the high and low prices for almond oil in each month of 1915:—

	Per pound—Bitter—		Artificial—	
	High.	Low.	High.	Low.
January	$4.75	$4.75	$1.00	$1.00
February	4.75	4.75	1.25	1.00
March	4.75	4.75	1.25	1.25
April	4.75	4.75	1.50	1.25
May	4.75	4.75	3.00	1.50
June	6.00	4.75	3.50	3.00
July	6.75	6.00	4.00	3.50
August	6.75	6.75	4.50	4.00
September	7.50	6.75	5.00	4.50
October	7.50	7.50	5.50	5.50
November	8.50	7.50	5.50	5.50
December	9.00	8.50	5.50	5.50
Year	9.00	4.75	5.50	1.00

BERGAMOT.

A monthly summary of high and low prices for bergamot oil during the last year follows:—

	Per pound—1915—	
	High.	Low.
January	$3.75	$3.25
February	3.25	3.15
March	3.15	3.00
April	3.15	3.00
May	3.15	3.10
June	3.10	3.05
July	3.25	3.15
August	3.25	3.05
September	3.15	3.05
October	3.15	3.10
November	3.50	3.10
December	3.50	3.50
Year	3.75	3.00

LEMON.

A summary of high and low quotations for lemon oil for each month during the last year follows:—

	Per pound—1915—	
	High.	Low.
January	$1.15	$1.05
February	1.15	1.10
March	1.10	1.05
April	1.10	1.05
May	1.05	1.00
June	1.05	1.00
July	1.25	1.10
August	1.25	1.10
September	1.10	1.05
October	1.05	1.00
November	1.00	1.00
December	1.00	.95
Year	1.25	.95

A record of high and low prices by years from 1901 to 1915 follows:—

	High.	Low.		High.	Low.
1901	$1.15	$0.80	1909	$3.00	$0.72½
1902	.80	.65	1910	.82½	.75
1903	.70	.55	1911	1.65	.80
1904	.55	.50	1912	2.10	1.30
1905	.57½	.55	1913	4.75	2.20
1906	1.20	.57	1914	3.75	1.05
1907	2.00	1.00	1915	1.25	.95
1908	1.50	.70			

ORANGE.

Below are set forth the high and low prices for sweet orange oil in each month of 1915:—

	Per pound—Italian.		West Indian.	
	High.	Low.	High.	Low.
January	$1.60	$1.60	$1.50	$1.50
February	1.60	1.55	1.50	1.40
March	1.55	1.50	1.40	1.25
April	1.65	1.50	1.50	1.25
May	1.75	1.65	1.50	1.40
June	1.85	1.65	1.50	1.40
July	2.00	1.75	1.70	1.50
August	2.00	1.85	1.70	1.65
September	1.85	1.75	1.70	1.65
October	1.75	1.75	1.70	1.65
November	1.80	1.75	1.65	1.50
December	1.90	1.80	1.50	1.50
Year	2.00	1.50	1.70	1.25

PEPPERMINT.

High and low prices for bulk peppermint oil for the last year are summarized as follows:—

	1915— Per pound	
	High.	Low.
January	$1.50	$1.35
February	1.55	1.50
March	1.55	1.55
April	1.70	1.55
May	1.70	1.65
June	1.65	1.60
July	1.65	1.55
August	1.60	1.55
September	1.55	1.50
October	2.00	1.55
November	1.95	1.90
December	1.95	1.90
Year	2.00	1.35

A record of the high and low prices for the years 1911 to 1915, inclusive, follows:—

	High.	Low.		High.	Low.
1911	$2.90	$2.25	1914	$4.60	$1.40
1912	2.85	2.75	1915	2.00	1.35
1913	3.85	2.75			

SPEARMINT.

A summary of high and low prices for spearmint oil during the last year follows:—

	1915— Per pound	
	High.	Low.
January	$1.50	$1.50
February	1.50	1.50
March	1.50	1.50
April	1.50	1.50
May	1.50	1.50
June	1.50	1.50
July	1.50	1.35
August	1.50	1.35
September	1.50	1.35
October	1.75	1.60
November	1.75	1.75
December	1.75	1.75
Year	1.75	1.35

A record of the high and low prices for the last four years follows:—

	High.	Low.		High.	Low.
1912	$4.85	$4.35	1914	$4.60	$1.50
1913	4.85	4.00	1915	1.75	1.35

FLOWERS.

SAFFRON, AMERICAN.

The following table shows the fluctuations in prices for American saffron flowers in 1915:—

	1915— Cents per lb.	
	High.	Low.
January	35	32½
February	32½	32½
March	32½	32
April	35	32
May	35	32
June	75	35
July	75	65
August	65	60
September	65	60
October	65	60
November	70	65
December	1.25	70
Year	1.25	32

A record of high and low prices for the last six years follows:—

	Cents per pound— High.	Low.		High.	Low.
1910	55	18	1913	45	30
1911	33	18	1914	60	35
1912	45	33	1915	1.25	32

SAFFRON FLOWERS, SPANISH.

	Per pound	
1915.	High.	Low.
January	$11.75	$10.50
February	12.00	11.75
March	12.00	11.75
April	12.00	12.00
May	12.00	12.00
June	12.00	11.75
July	12.00	11.50
August	11.50	11.25
September	11.25	11.25
October	11.25	11.00
November	11.00	11.00
December	11.25	11.00
Year	12.00	10.50

GUMS.

ALOES, CURACAO.

The following shows the prevailing high and low prices for Curacao aloes in cases in each month during the last year:—

CURACAO ALOES, IN CASES AND GOURDS

	Cents per pound— Cases.		Gourds.	
1915.	H.	L.	H.	L.
January	13	13	13	13
February	13	12¾	13	12¾
March	12¾	12¾	12¾	12¾
April	12¾	12¾	12¾	12¾
May	12¾	12	12¾	12¾
June	12	11½	12¾	12¾
July	12½	11½	12¾	12¾
August	13	12½	14	12¾
September	15	13	14	13
October	13	12½	13	13
November	13	13	13	13
December	14	13	13	13
Year	15	11½	15	12¾

A summary of the high and low prices for Curacao aloes in cases in the last six years follows:—

	Cents per pound— High.	Low.
1910	8¾	6¾
1911	8	6½
1912	11½	7¾
1913	11	6½
1914	16	8
1915	14	11½

ARABIC.

In the following table the high and low prices for amber sorts of gum arabic are given for each month of 1915:—

	Cents per pound— High.	Low.
1915.		
January	14	11½
February	12	11½
March	12	12
April	14	13
May	13	13
June	13	13
July	13	13
August	16	13
September	16	16
October	20	16
November	21	20
December	23	21
Year	23	11½

CAMPHOR.

American, Refined.

High and low prices for American refined camphor in bulk, by months, for 1915 are shown in the following summary:—

	Cents per pound, bulk, in barrels.	
1915.	High.	Low.
January	44½	41
February	41	41
March	41	41
April	41	41
May	43	41
June	43	43
July	43	43
August	43	43
September	43	42
October	42	42
November	42	42
December	42	42
Year	44½	41

A record of the high and low prices for the five previous years follows:—

	High.	Low.
1910	45	42
1911	49½	42
1912	44	44
1913	44	42
1914	59½	41
1915	44½	41

Japan Refined Camphor, 2 1-2-lb. Slabs.

	Cents per pound— High.	Low.
1915.		
January	41½	41
February	41	40½
March	40½	40½
April	40½	39
May	43½	40½
June	43½	43½
July	43½	42½
August	42½	42½
September	42½	42
October	42	41½
November	42	41½
December	42½	42
Year	43½	39

TRAGACANTH.

The following tables show the high and low prices in each month of 1915 for the first, second and third qualities and sorts of Aleppo gum, and also for the first, second and third qualities of Turkish gum:—

	Per pound— Firsts.		Seconds.		Thirds.		Sorts.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan.	2.00	2.00	1.60	1.60	1.00	1.00	.50	.50
Feb.	2.00	2.00	1.60	1.60	1.00	1.00	.50	.50
March	2.00	2.00	1.60	1.60	1.00	1.00	.50	.50
April	2.00	2.00	1.60	1.60	1.00	1.00	.50	.50
May	2.00	1.90	1.60	1.60	1.00	1.00	.50	.50
June	2.10	1.90	1.70	1.60	1.00	1.00	.50	.50
July	2.10	2.10	1.80	1.70	1.00	1.00	.50	.50
Aug.	2.10	2.00	1.80	1.80	1.00	1.00	.50	.50
Sept.	2.10	2.06	1.80	1.80	1.00	1.00	.50	.50
Oct.	2.00	2.00	1.80	1.80	1.00	1.00	.50	.50
Nov.	2.00	2.00	1.80	1.80	1.00	1.00	.50	.50
Dec.	2.00	2.00	1.80	1.80	1.00	1.00	.50	.50
Year	2.10	1.90	1.80	1.60	1.00	1.00	.50	.50

Turkish.

	Per pound— Firsts.		Seconds.		Thirds.	
	H.	L.	H.	L.	H.	L.
January	$1.70	$1.70	$1.20	$1.20	$0.80	$0.80
February	1.70	1.70	1.20	1.20	.80	.80
March	1.70	1.70	1.20	1.20	.80	.80
April	1.70	1.70	1.20	1.20	.80	.80
May	1.70	1.70	1.20	1.20	.80	.80
June	1.70	1.70	1.20	1.20	.80	.80
July	1.80	1.70	1.20	1.20	.80	.80
September	1.75	1.75	1.20	1.20	.80	.80
August	1.80	1.75	1.20	1.20	.80	.80
October	1.75	1.75	1.20	1.20	.80	.80
November	1.75	1.75	1.20	1.20	.80	.80
December	1.75	1.75	1.20	1.20	.80	.80
Year	1.80	1.70	1.20	1.20	.80	.80

HERBS AND LEAVES.

BUCHU.

High and low prices for short buchu leaves for the last year are set forth as follows:—

BUCHU SHORT AND LONG.

	Per pound— Short.		Long.	
1915.	H.	L.	H.	L.
January	$1.55	$1.45	$1.30	$1.30
February	1.55	1.55	1.30	1.30
March	1.55	1.45	1.30	1.25
April	1.40	1.30	1.28	1.28
May	1.35	1.20	1.28	1.20
June	1.20	1.15	1.20	1.17
July	1.15	1.10	1.17	1.05
August	1.10	1.05	1.05	1.00
September	1.05	1.10	1.17	1.05
October	1.20	1.05	1.15	1.00
November	1.25	1.20	1.20	1.15
December	1.25	1.25	1.20	1.20
Year	1.55	1.05	1.30	1.00

A summary of the high and low prices for the short leaves in the last four years follows:—

	High.	Low.
1912	$1.65	$0.95
1913	1.50	1.25
1914	1.85	1.30
1915	1.55	1.05

BELLADONNA LEAVES.

The following table shows the high and low prices in each month of 1915 for belladonna leaves:—

	Per pound— High.	Low.
1915.		
January	$1.50	$1.00
February	1.25	1.00
March	1.30	1.25
April	1.30	1.25
May	1.25	1.25
June	1.25	.85
July	1.25	.75
August	1.50	1.25
September	1.50	1.40
October	1.40	1.35
November	1.35	1.35
December	1.35	1.35
Year	1.50	.75

ROOTS.

GOLDEN SEAL.

High and low prices for golden seal root in each month of 1914, together with those for the two years previous, are shown in the following summary:—

	Per pound— High.	Low.
1915.		
January	$4.60	$4.20
February	4.60	4.60
March	4.85	4.60
April	4.85	4.60
May	4.65	4.60
June	4.65	4.50
July	4.50	4.25
August	4.25	4.25
September	4.25	4.25
October	4.35	4.25
November	4.50	4.33
December	4.50	4.50
Year	4.85	4.20

A record of the high and low prices for the three previous years follows:—

	High.	Low.
1912	$5.25	$4.00
1913	5.00	3.90
1914	4.90	4.20
1915	4.85	4.20

IPECAC.

The following table shows the high and low prices in each month of 1915 for Cartagena and Rio ipecac root:—

	Cartagena. Per pound—		Rio.	
	High.	Low.	High.	Low.
January	$2.00	$1.85	*$4.00	$4.00
February	2.00	2.00	3.35	3.10
March	2.00	1.70	3.10	3.10
April	5.00	1.75	5.00	3.10
May	5.50	5.00	5.50	5.00
June	5.00	2.50	5.00	5.00
July	2.50	2.00	5.00	5.00
August	2.25	2.25	5.00	5.00
September	2.25	2.00	5.00	4.00
October	2.25	2.00	4.00	2.85
November	2.50	2.00	3.00	2.85
December	3.25	2.50	4.00	3.00
Year	5.50	1.70	5.00	2.85

*Not obtainable on spot.

CARTAGENA.

A summary of the high and low prices for Cartagena root for the last five years follows:—

	High.	Low.
1911	$2.30	$1.75
1912	2.35	1.45
1913	2.20	1.75
1914	2.00	1.42½
1915	5.50	1.70

JALAP.

The following table shows high and low prices for jalap root for each month in 1915:—

1915.	Cents per pound— High.	Low.
January	10	10
February	10	10
March	10	9½
April	9½	9½
May	10	9½
June	10	8
July	8	8
August	9	8
September	9	9
October	9	8¾
November	8¾	8¾
December	8¾	8¾
Year	10	8

A record of high and low prices for the past five years follows:—

	Cents per pound— High.	Low.
1911	40	22
1912	26	22
1913	23	13
1914	20	10
1915	10	8

SARSAPARILLA.

Mexican.

The high and low quotations for Mexican or Tampico sarsaparilla root each month during the last year are shown in the following summary:—

1915.	Cents per pound— High.	Low.
January	14	10
February	12	12
March	12	9
April	12	10
May	12	11
June	12	11
July	15	12
August	14	13
September	13	13
October	13	13
November	13	12½
December	12½	12
Year	15	9

A record of the high and low prices for the five previous years follows:—

	High.	Low.
1910	11	8¾
1911	18½	9
1912	19	11
1913	28	14
1914	50	10
1915	15	9

SENEGA.

High and low prices for senega root in each month of 1915 are shown as follows:—

1915.	Cents per pound— High.	Low.
January	38	38
February	38	38
March	40	38
April	42	40
May	42	42
June	42	42
July	42	35
August	35	35
September	35	35
October	38	35
November	41	38
December	45	41
Year	45	35

A record of high and low prices for the five years follows:—

	High.	Low.
1910	60	43
1911	60	42
1912	65	59
1913	80	63
1914	50	38
1915	45	35

SEEDS.

CANARY.

Below are set forth the high and low prices for canary seed in each of the months of 1915:—

	Cents per pound— Smyrna.		South American.		Dutch.	
	High.	Low.	High.	Low.	High.	Low.
Jan.	7½	6¾	6¾	6½	6	6
Feb.	6¾	6¾	6¾	6¾	6	6
Mar.	7	6¾	6½	6½	6¾	6
Apr.	7	6½	6	5½	6¾	5½
May	6½	6½	5½	5¼	5½	5½
June	6½	6½	5¼	5	5½	5½
July	6½	6½	5¼	4¾	5½	5½
Aug.	6½	5¾	4¾	4¾	6	5½
Sept.	5¾	5¾	4¾	4¾	6	6
Oct.	5¾	5¾	4¾	4¾	6	6
Nov.	5¾	5¾	4¾	4¾	6	6
Dec.	5¾	5¾	4¾	4¾	6	4½
Year	7½	5¾	6¾	4¾	6¼	4½

CARAWAY.

A summary of high and low prices for caraway seed in each month of 1915 is shown in the following table:—

1915.	Cents per pound— High.	Low.
January	8¾	8½
February	9½	8¾
March	9¼	9¼
April	9¼	8½
May	8½	8½
June	10	8½
July	10¼	10
August	10	9¾
September	9¾	9¾
October	13	9¾
November	13½	13¼
December	13½	12¾
Year	13½	8½

A record of the high and low prices for the previous four years follow:—

	High.	Low.
1911	6½	5
1912	8	5½
1913	7¼	5¾
1914	15	7
1915	13½	8½

CELERY.

High and low quotations for celery seed in 1915 are shown by monthly comparisons as follows:—

CELERY SEED.

1915.	Cents per pound— High.	Low.
January	20	14
February	19	15
March	18	16
April	18	17
May	17½	16½
June	16¾	16½
July	25	16¾
August	35	25
September	35	33
October	33	31
November	31	30½
December	30	29
Year	35	14

A summary of the high and low prices for the previous three years:—

	High.	Low.
1912	30	15
1913	45	12
1914	40	14
1915	35	14

SPICES.

CLOVES.

Zanzibar.

Following is a summary of the high and low points reached by Zanzibar cloves during each month of 1915, and the highest and lowest figures recorded in the last sixteen years:—

1915.	Cents per pound— High.	Low.
January	17½	17¼
February	17½	17
March	17½	17
April	17½	17½
May	17½	17
June	17	15¾
July	15¾	15½
August	15½	15¼
September	15½	15¼
October	17	15¼
November	21	18
December	21	20
Year	21	15¼

	Cents per pound— High.	Low.
1915	21	15¼
1914	22	14½
1913	21½	15
1912	20½	10¾
1911	19	12
1910	15½	10
1909	11½	9½
1908	12	10
1907	18¼	11
1906	15	13
1905	14½	8½
1904	19	13
1903	10½	7½
1902	9	8
1901	9½	7 3/16

WAXES.

CARNAUBA.

Below are set forth the high and low prices for the No. 3 chalky and North Country grades of carnauba wax in each month of 1915:—

1915.	Cents per pound— No. 3 Chalky. High.	Low.	No. 3 North Country. High.	Low.
January	29	27	30	27
February	27	27	27	27
March	27	27	27	25
April	27	25	25	24½
May	25	25	24½	24½
June	27	24	24½	24
July	24	23½	24	23½
August	23½	22	23½	22
September	22	22	22	22
October	22	22	22	22
November	22	22	22	22
December	22	22	22	22
Year	29	22	30	22

JAPAN.

The high and low prices for Japan wax by months during 1915 follow:—

1915.	Cents per pound— High.	Low.
January	10½	10¼
February	12	10½
March	13	12
April	12¾	12½
May	12½	12
June	12	11¾
July	13½	11¾
August	13	12½
September	13¾	12¾
October	12¾	12
November	12¾	12
December	13	12½
Year	13¾	10¼

NEW YORK SHELLAC MARKET.

The year has brought substantial improvement to the shellac market, the most vital developments covering the last few months. The question of freight accommodations from Calcutta proved the greatest factor in the market's destinies, heavy withdrawals of British vessels from the merchant marine for government service having been accompanied with the more serious turn of the Balkan complications, necessitating an apportionment of shellac export engagements to a much finer degree. The possibility of closing the Suez Canal attracted much attention, although the effect of shipments via the Cape of Good Hope was not regarded as of great moment, a matter of about three weeks' delay. Late in the year the Cape rate became an accepted alternative, owing to the wide variance in war insurance risks, the activity of German submarines in the Mediterranean increasing the premium to 8@10 per cent., while the Cape rate was around 1 per cent. The more serious limitation upon freight facilities late in the year operated to all the greater disadvantage to importing interests, since November is generally counted the first full month during which shipments may be fairly relied upon to reach their destination free and ready for distribution.

The record of shipments from Calcutta for the shellac year ending November to this country attracted much attention by reason of the substantial increase during a period when trade conditions have been subjected to so many harassing factors. The shipments totaled 153,600 packages, or about 45,000 packages in excess of the aggregate for the former year. The normal country's annual consumption has been placed at around 125,000 packages. The regular trade stocks seemed rather suggestive of a lessened volume of imports, and some of the consuming interests were known to be urgent buyers. The distribution of the surplus receipts became somewhat of a question in the local trade. The most logical explanation was believed to lie in the general expansion of the country's consumption, with probably the greatest proportionate gain in phonograph records. This field has been developed on most encouraging lines and is credited with a substantial share of the general consumption, with prospects for further steady increases. The hat trade, an important factor twenty-five or thirty years ago, has lapsed into an outlet of almost negligible proportions. For varnish and compound requirements shellac is entering on broadening lines.

At the opening of the year T. N. was quoted at 14½@15c. There was an early advance to 15c. as a minimum, based chiefly on the possibility of a lessened production or the prospects of an increased acreage for food products, but this factor proved of flightly significance, and Calcutta and London were soon in easier tendency, causing a reduction to 14c. on spot by the end of January. From this point the primary market developed a firmer course on the freight situation, with bags practically replacing cases as the most economical basis for shipment. The freight situation assumed steadily increasing handicaps, and by the end of March the cost to lay down T. N. here was placed at nearly 2c., as against ½@⅝c. ordinarily, but there was no appreciable reflection upon spot prices. The course of the local market was generally uneventful over the next few months, and quotations remained at a relatively low level, chiefly as a result of dull trade and sharp competition. Primary offers continued of a sparing character, based on the restriction upon freight engagements and facilities. Under the influence of a flurry in Calcutta a 15c. spot basis for T. N. was in effect by October. With the tightening of the freight situation during the closing months the local market came into its most creditable position in more than a year late in November, with 18c. ruling for T. N. Foreign developments continued of a strengthening character, the most significant being the sharp advance in war risk insurance via the Mediterranean. Even London was regarded as a more favorable basis for immediate shipment and an advantage to which much consideration was attached was the assurance of fairly reliable shipment, whereas Calcutta has the benefit of an option allowing sixty days' delay. The spot basis was advanced to 20@21c., and some sellers made a distinction between prices, 20c. for freed, and 21c. for free T. N., due to the increasing scarcity of the latter goods. By the close of the year 21c. was a minimum quotation for T. N. of any description, and greater concern was manifested over prospects for January clearances, upon which more reliance was placed for deliveries to meet the expected expansion in consumption. Out of thirty vessels in the near East service twenty-two were reported to have been taken for English war service.

The course of the market for T. N. in bags is indicated as follows:—

Opening	High.	Low.	Closing
14½	21	13½	21

The market for bleached bore the brunt of keenest competition during the greater part of the year, failing to develop anything like a reasonable reflection of the basic material. Opening at 19 cents, bone dry was shaded to 18 cents before the close of January, which was partly justified by the reaction in T. N. The market followed a fairly even course over the next few months, touching the low level of the year at 17½ cents early in July, when the weakening of T. N. prompted sharper knifing practices. August brought a turn in the general situation as a result of increased freight complications, and bleached regained an 18-cent position. Basic conditions developed steadily strengthening significance with the advance of fall, and a marked quickening in the demand for bleached contributed to its credit. Late in October a 19-cent level was reached for fine dry, and from this point there was nothing to check the buoyant trend of prices, the year closing with the market strongly established at 24 cents. A factor of keen moment during the closing weeks was the pressing character of the demand, and practically all of the bleachers were unable to keep up with requirements, and many cases of trouble in meeting contract specifications were reported. A good part of this difficulty was due to defaults in deliveries of bleaching powder, sulphuric acid and soda ash on contracts, and the reality and possibility of replacing the desired chemicals and the continued urgent demand for bleached brought the market to its most creditable position since the fleeting flurry on the outbreak of the war. The course of commercial bleached over the year has been practically consistent with that for bone dry, and the ranges of prices for both descriptions are summarized as follows in cents per pound:—

Opening.	BONE DRY. High.	Low.	Closing.
19	24	17½	24
	COMMERCIAL.		
Opening.	High.	Low.	Closing.
14½	19	14	19

Comparisons of other grades of shellac follow:—

	Opening.	High.	Low.	Closing.
D. C.	24	26	21½	26
V. S. O.	23	25	21½	25
Diamond I.	23	25	20	25
A. C. garnet	15	19	14	19

All shellac varnishes scored steady gains in sympathy with the course of the gum, and particularly as a reflection of the sharp increase in denatured alcohol, supplies of which during the latter part of the year became involved in much uncertainty. There were complaints that alcohol had been diverted from the shellac trade in order to take advantage of the much more attractive prices for the ethyl alcohol for export. The inability to cover forward supplies of denatured alcohol on the customary contracts was the occasion of considerable feeling.

The record of exports of shellac from Calcutta for the last four shellac seasons and calendar years follows:—

SHELLAC SEASON SHIPMENTS.

	November-November— 1914-15. Cwts.	1913-14. Cwts.	1912-13. Cwts.	1911-12. Cwts.
America	230,400	162,700	140,300	161,300
Un. Kingdom	92,300	94,100	77,800	79,000
Continent	12,700	81,200	81,900	138,400
Totals	335,400	338,000	300,000	378,700

CALENDAR YEAR SHIPMENTS.

	1915. Cwts.	1914. Cwts.	1913. Cwts.	1912. Cwts.
America	256,700	163,900	130,300	161,000
Un. Kingdom	88,100	80,000	83,200	80,500
Continent	16,900	74,300	65,300	131,200

LONDON SHELLAC MARKET.

Under a steady accession to warehoused stocks in London during the first four months of the year, value of shellac slowly but consistently declined. Somewhat heavy deliveries in May arrested the recession, but these falling off again in June prices dropped still further, touching the lowest of the twelve months. A good demand, however, in July and August and a fairly brisk business in September kept quotations in the ascendant and, under the stimulus of a steadily rising Calcutta cable, the advance continued throughout the autumn, the highest on spot being attained in the latter part of December. The landings delivered and stocks, month by month, in cases, were as follows:—

	Landed— 1915.	1914.	Delivered— 1915.	1914.	Stocks— 1915.	1914.
Jan.	3,941	5,292	4,288	3,013	89,345	96,119
Feb.	8,166	6,866	2,618	3,601	94,893	99,384
Mar.	6,161	3,858	3,957	4,045	97,097	99,197
Apr.	6,224	5,118	3,423	2,666	99,898	101,649
May	1,319	4,294	5,063	4,721	96,154	101,222
June	4,443	2,109	3,776	3,876	96,821	99,455
July	3,365	4,007	5,510	5,069	94,676	98,393
Aug.	6,447	6,350	5,160	5,447	95,963	99,296
Sept.	5,343	3,738	4,874	4,212	96,432	98,822
Oct.	3,361	1,422	4,490	4,065	95,303	96,179
Nov.	6,306	1,340	4,508	4,485	97,101	93,034
Dec.	4,702	2,066	8,094	5,408	93,709	89,692
Total	59,778	46,370	55,761	50,608		

The totals for 1915 compare with previous years thus:—

LANDED.

	1915. Cases.	1914. Cases.	1913. Cases.
Orange	48,404	34,837	33,085
Garnet	5,080	5,460	6,864
Button	5,394	6,073	6,622
Totals	59,778	46,370	46,571

DELIVERED.

	1915. Cases.	1914 Cases.	1913. Cases.
Orange	44,763	40,062	36,457
Garnet	5,712	4,716	6,912
Button	5,286	5,830	7,692
Totals	55,761	50,608	51,061

STOCKS AT END OF YEAR.

	1915. Cases.	1914. Cases.	1913. Cases.
Orange	85,542	81,901	87,126
Garnet	3,940	3,672	2,999
Button	4,227	4,119	3,805
Totals	93,709	89,692	93,930

The weekly spot prices cabled to the Reporter show on analysis the following various variations:—

	Open. s. d.	Close. s. d.	High. s. d.	Low. s. d.
1915	64 0	79 0	80 0	54 0
1914	88 6	62 0	88 6	54 0
1913	71 0	85 0	102 0	71 0
1912	63 0	70 0	71 0	61 0
1911	77 0	63 0	80 0	62 0
1910	68 0	77 0	88 0	65 0

The course of values, week by week, was as follows:

		1915. s. d.	1914. s. d.	1913. s. d.	1912. s. d.
Jan.	2	64 0	88 6	71 0	63 0
	9	65 0	83 0	72 6	63 0
	16	64 0	83 0	72 6	63 0
	23	62 0	81 0	71 6	63 0
	30	62 0	80 0	75 0	63 0
Feb.	6	62 0	77 0	76 0	63 0
	13	62 0	72 0	81 0	61 0
	20	62 0	72 0	83 0	61 0
	27	61 0	73 0	82 0	61 0
Mar.	6	61 0	71 0	80 0	62 0
	13	61 0	70 0	79 0	62 0
	20	62 0	70 0	79 0	61 0
	27	61 0	70 0	79 0	62 0
Apr.	3	61 0	70 0	79 0	62 0
	10	61 0	72 0	78 0	34 0
	17	61 0	71 0	76 0	63 0
	24	59 0	69 0	76 0	64 0
May	1	60 0	66 0	75 0	63 0
	8	60 0	64 0	76 0	63 0
	15	60 0	66 0	81 0	63 0
	22	60 0	65 0	82 0	63 0
	29	59 0	65 0	85 0	63 0
June	5	59 0	64 0	86 0	63 0
	12	59 0	64 0	88 0	63 0
	19	58 0	61 0	89 0	63 0
	26	58 0	62 0	90 0	62 0
July	3	55 0	63 0	89 0	62 0
	10	54 0	63 0	90 0	62 0
	17	58 0	62 0	92 0	62 0
	24	58 0	63 0	93 0	62 0
	31	62 0	60 0	94 0	62 0
Aug.	7	60 0	59 0	95 0	62 0
	14	62 6	59 0	101 0	63 0
	21	62 0	58 0	102 0	63 0
	28	63 0	58 0	102 0	66 0
Sept.	4	67 0	55 0	102 0	66 0
	11	66 0	54 0	99 0	66 0
	18	69 0	55 0	99 0	67 6

	25....	68	0	55	0	97	0	69	0
Oct.	2....	69	0	55	0	91	0	69	0
	9....	69	0	55	0	90	0	71	0
	16....	69	0	55	0	90	0	70	0
	23....	68	0	55	0	90	0	71	6
	30....	72	0	57	0	92	0	70	0
Nov.	6....	72	0	57	0	90	0	69	0
	13....	72	0	60	0	89	0	86	6
	20....	74	0	62	0	87	0	69	0
	27....	76	0	61	0	87	0	69	0
Dec.	4....	75	0	60	0	82	0	69	0
	11....	79	0	62	0	82	0	68	0
	18....	80	0	63	0	85	0	70	0
	25....	79	0	62	0	85	0	70	0

Monthly quotations for futures over the last two years show as follows:—

1915.	s. d.	Delivery.
January 2	65 0	March
February 6	62 6	March
March 6	62 6	May
April 3	62 0	May
May 8	62 0	August
June 5	61 0	August
July 3	55 0	August
August 7	64 0	December
September 4	69 0	December
October 2	71 0	December
November 6	73 0	December
December 4	78 0	March
January 4	91 6	March
February 1	75 0	March
March 1	72 6	May
April 5	70 0	May
May 3	65 0	August
June 7	64 0	August

1914.	s. d.	Delivery.
July 5	62 6	August
August 2	Suspended.	
September 6	Suspended.	
October 4	56 0	December
November 1	60 6	December
December 6	63 0	March

WESTERN PEPPERMINT OIL.

The year of 1915 started in with very large stocks of peppermint oil in growers' hands in Michigan, but most of this oil was in the possession of growers who could afford to hold out for higher prices. Therefore, the early months of 1915 saw peppermint not only holding steady but advancing in price, in spite of the fact that growers' stocks were greater than for many years. This, of course, encouraged more new planting, so the spring of 1915, after the new setting was finished, found the producing regions with 22,500 acres, the largest acreage ever recorded in Michigan, and also with the abovementioned large stocks of "hold-over" oil.

This made dealers rather bearish concerning the prices they would receive from the 1915 crop and, on this account, then did not contract very much ahead, preferring to buy after the crop was distilled.

The crop grew beautifully and it looked as if some very cheap oil would be available. The weather was fine until around Independence Day, and growers felt sure of a large yield. About this time, however, terrific rains began, and kept up for some time, causing the leaves to rot and fall so badly that, before distilling was completed, much of the crop was worthless and left in the field.

Such a condition was a surprise to everyone, and instead of 32 pounds to the acre, as in 1914, the 1915 crop made an average yield of less than 15 pounds per acre. Of course there was nothing to it then, the grower just simply had to get more money for his oil or lose money. Consequently prices advanced until they are now crowding towards $5, and the oil is becoming available very slowly at that.

Conditions are expected to get tighter from now on, because virtually the same steadfast holders who held over last year are now in control of the situation, and they feel that they already have won their campaign for high prices, because oil is about 50 cents per pound higher than a year ago. The big holders also realize that the short crop conditions are favoring them and they are going to make every effort to boost prices. There is no reason to think they have to sell now, as there is plenty of money back of them, and many of their number are bankers or directors in banks.

The oil in the hands of small holders is nearly all bought and used up.

AMERICAN BOTANICAL DRUGS.

Mandrake Root.

The 1915 crop was undoubtedly the heaviest in many years, and the demand was curtailed considerably on account of the war. Besides, American consumption was below the normal, on account of the low price of podophyllin, and there has been carried over in the producing sections of the West and South not less than twenty-five to thirty cars, or something near a million pounds—enough to supply America and Europe another season if there is not an ounce dug in 1916. Consequently, the market for this article is very dull, and the year just closed was not profitable in this article, as most dealers paid more at the beginning of the season than they can now realize.

Golden Seal Root.

This important drug came in with a rush early in June and dealers reduced their prices and have never been able to restore them. Although the crop of wild root was not very heavy, the cultivated root is coming in heavier each year and, with the curtailed demand from Europe, on account of the war, there is very little prospect of a boom in this article. There is still a large amount in the hands of dealers in the West and South and there will be considerable amount carried over.

Dandelion, Burdock, Yellow Dock,

Stramonium and Calamus.

These botanicals have all been much higher this season, as very little has been imported. Therefore, the outlook for higher prices on these articles is very good.

Helonias and Aletris.

These roots have suffered a deavy decline, as the high prices prevailing early in 1915 stimulated digging and produced a bumper crop. In fact, everyone seems loaded with the article, and the prospects of an early advance are very remote.

Serpentaria, Pink and Culvers.

Like mandrake root, these roots have been neglected by the consumer, and the collection of each has been enormous. Therefore, prices have declined accordingly and many tons have been carried over.

LONDON DRUG MARKET.

The outstanding general feature of 1915 was the marked all-round elevation in value of those synthetic and other medicinal chemicals for which in ante-bellum days Great Britain had mainly depended on Germany. The distracted wholesale druggist watched with despair the continual rise in these articles, which only occasionally halted, while comparatively small supplies were taken into consumption from America and from new British production, which as yet is of promising but minor significance. The resale profits on any stock in hand or imported have been very good, and Mincing lane made money last year if ever it did. In the table below some of the leading items of the fine chemical classification are included, and the difference between the opening and closing prices of such articles as acetanilide, acetosal, chloral, cocaine, hexamine, hydroquinine, phenacetine, phenolphthalein, phenazone, quinine, salicylic acid and derivatives, and sulphonol is very considerable. Had export restrictions not been on most of these articles the price would have been enormously higher or the substance non-existent. An example of the application of the export prohibition, except under permit, was furnished in the case of quinine, which under the stimulus of American and other foreign orders made prodigious spurts in the early autumn, rising from 1s. 8d. at the beginning of September to 6s. at about the end of October; the government then intervened by prohibiting the export of cinchona bark, quinine and its salts to all destinations. This prohibition had been placed on this group at the commencement of the war but removed as a result of representations by the trade. Its prompt replacemnt when the alkaloidal sulphate soared to such heights smartly brought about a slump in value, 2s. 9d. being touched in December, but the article closed the year firmer at 3s. 3d., which compared with 1s. 1½d. at the beginning of the year. As regards other chemicals in the list below it may be said that atropine was almost unobtainable in the last few months, the quantities changing hands being of quite a retail character. Relief from the United States to stock stringency here has materially restrained the upward movement in formaldehyde and chloral. In regard to the latter article the government proposed to abolish the import duties on the series of spirit-derived products with which it is associated in the (at present) small British tariff. The idea, apparently, was to encourage home production of some ethyl esters from duty-free spirit, which the authorities would be in a permission to authorize if the customs duties were removed. But British makers protested that such removal would very seriously injure their position in the production of such articles as chloroform, ethyl chloride and sulphuric ether, and the government dropped the proposition. Another point in regard to British makers may be mentioned here; they have been careful to lend no encouragement to the speculative dealer in the articles with which they are identified. Quinine makers, for instance, have commonly been naming much lower prices than the second-hand market, and they have been supplying regular customers only. Bromide producers also preserved as conservative a policy as compatible with the scarcity of bromine; until comparatively recently they were bound to respond to action from our side. Again manufacturers of mercurials and bismuth salts based their selling rates on cost of production and not on the possibility of market manipulation; quicksilver, itself, is about £5 10s. per bottle dearer on the year, and bismuth has recently been under more stringent conditions of supply. Chloroform, to take another instance, was only 2d. per pound dearer until the last few days of the year, when another 8d. was added to meet increased cost of production. Similarly, iodides had to be adjusted to an additional 1½d. early in the year on crude iodine. Morphine and codeine, two other well known articles from British works, have moved but slightly in the year, the Persian opium providing the makers with preferential material over the Turkey drug, which took a very decided upward turn in September to November. Of other articles balsam of Peru has been in much demand for war medical purposes. Price of ipecacuhu has been maintained, often in the absence of support from the market. Supplies from Russia have relieved the situation somewhat in cantharides, ergot and santonin. An upward movement in refined Japan camphor was sequential to an addition to the monopoly price for crude, which prompted demand. Glycerine, as explained in another column, was brought under the control of the Minister of Munitions. A very heavy requirement by the military authorities for emetine (for dysentery) influenced a considerable augmentation in ipecac values. Higher saccharin quotations reflected a change in the import duty. Saltpeter, refined, has largely reflected movements in the Bengal crude, but labor, etc., has also operated. Gray Jamaica sarsaparilla moved up early in the spring but receded subsequently. Beeswax has been a steadily receding market.

Article	Opening £	s.	d.	Closing £	s.	d.
Acetanilid, lb.	0	1	10	0	7	0
Acetosalicylic acid, lb.	0	6	6	0	50	0
Almond oil, sweet, lb.	0	2	8	0	2	9
Aloes, Cape, good, hard, bright, cwt.	0	35	0	0	34	0
Atropine sulphate, oz.	0	65	0	0	130	0
Balsam of Peru, lb.	0	7	0	0	22	0
Balsam of Tolu, lb.	0	1	10	0	1	7
Bismuth carbonate, 1 cwt., lb.	0	11	2½	0	11	2½
Buchu, good, round, green, lb.	0	5	6	0	5	3
Calomel, 1 cwt., lb.	0	4	2	0	6	1½
Camphor, crude, Japan, c. i. f., B, cut.	0	135	0	0	135	0
C. i. f., BB, cut	0	142	6	0	147	6
Refined, Japan, 1-oz. tablets, lb.	0	2	0	0	1	9
Refined, Japan, 2½-lb. slabs, lb.	0	1	10	0	1	8
Refined, English, bells (1 cwt.), lb.	0	2	2	0	2	3
Cantharides, Russian, lb.	0	13	0	0	11	0
Cardamoms, Ceylon Mysore, bold palish, lb.	0	5	6	0	5	0
Chloralhydrate (duty paid), lb.	0	6	0	0	14	9
Chloroform, B. P. (1 cwt.), lb.	0	1	10	0	2	8
Cocaine hydrochloride (175 ozs.), oz.	0	7	6	0	14	0
Codeine, pure cryst. (175 ozs.), oz.	0	22	6	0	22	0
Cod liver oil, Norwegian, fine, barrel	0	92	6	0	340	0
Ergot of rye, Russian, lb.	0	2	6	0	2	3
Formaldehyde (40%), cwt.	0	52	0	0	60	0
Glycerine, C. P. (5 tons, tins in cases), cwt.	0	140	0	0	114	0
Hexamine, lb.	0	3	3	0	5	3
Hydroquinone, lb.	0	8	6	0	35	0
Iodine, crude, oz.	0	0	9	0	0	10½
Resublimed (28 lbs.), lb.	0	15	0	0	17	3
Iodoform (28 lbs.), lb.	0	17	0	0	19	2
Ipecacuanha, Cartagena, lb.	0	9	6	0	16	0
Rio, lb.	0	15	0	0	23	0
Menthol, Kobayashi, lb.	0	10	9	0	12	0
Morphine, hydrochlor, powder, ozs.	0	13	3	0	12	3
Olive oil, Spanish, tun	0	54	0	0	54	0
Opium, Turkey, druggists', 11 per cent., lb.	0	27	6	0	35	0
Persian, 10 per cent., lb.	0	22	0	2	22	6
Phenacetine, lb.	0	6	0	0	60	0
Phenazone, lb.	0	9	6	0	72	6
Phenolphthalein, lb.	0	8	0	0	40	0
Potassium iodide (1 cwt.), lb.	0	13	0	0	15	0
Potassium bromide	0	3	3	0	25	0
Quinine sulphate, German, second hands, oz.	0	1	1½	0	3	3
Saccharine, lb.	0	25	0	0	73	0
Salicylic acid, lb.	0	4	6	0	21	0
Salol, lb.	0	5	3	0	47	0
Saltpeter, English, refined, cwt.	0	50	0	0	50	0
Santonin, lb.	0	225	0	0	155	0
Sarsaparilla, fair gray Jamaica, lb.	0	1	10	0	2	1
Sodium salicylate, lb.	0	5	0	0	22	0
Sugar of milk	0	75	0	0	73	0
Sulphonal	0	14	0	0	42	6
Wax, fair, Jamaica	9	0	0	0	15	0

Article	High £	s.	d.	Low £	s.	d.
Acetanilid; lb.	0	7	0	0	1	0
Acetosalicylic acid, lb.	0	50	0	0	6	6
Almond oil, sweet, lb.	0	2	9	0	2	8
Aloes, Cape, good, hard, bright, cwt.	0	35	0	0	32	0
Atropine sulphate, oz.	0	130	0	0	65	0
Balsam of Peru, lb.	0	22	0	0	7	0
Balsam of Tolu, lb.	0	2	3	0	1	7
Bismuth carbonate, 1 cwt., lb.	0	11	2½	0	11	2½
Buchu, good, round, green, lb.	0	5	6	0	4	6
Calomel, 1 cwt., lb.	0	6	1½	0	4	2
Camphor, crude, Japan, c. i. f., B, cut.	0	135	0	0	135	0
C. i. f., BB, cut.	0	147	6	0	142	6
Refined, Japan, 1-oz. tablets, lb.	0	2	6	0	1	8
Refined, Japan, 2½-lb. slabs, lb.	0	1	10	0	1	5¾
Refined, English, bells (1 cwt.), lb.	0	2	3	0	2	2
Cantharides, Russian, lb.	0	14	0	0	11	0
Cardamoms, Ceylon Mysore, bold palish, lb.	0	5	6	0	4	0
Chloralhydrate (duty paid), lb.	0	14	9	0	5	6
Chloroform, B. P. (1 cwt.), lb.	0	2	8	0	1	10
Cocaine hydrochloride (175 ozs.), oz.	0	15	6	0	7	3
Codeine, pure cryst. (175 ozs.), oz.	0	24	0	0	22	0
Cod liver oil, Norwegian, fine, barrel	0	400	0	0	90	0
Ergot of rye, Russian, lb.	0	2	9	0	2	3
Formaldehyde (40%), cwt.	0	70	0	0	50	0
Glycerine, C. P. (5 tons, tins in cases), cwt.	0	114	0	0	104	0
Hexamine, lb.	0	6	0	0	3	3
Hydroquinone, lb.	0	35	0	0	7	0
Iodine, crude, oz.	0	0	10½	0	0	9
Resublimed (28 lbs.), lb.	0	17	3	0	15	0
Iodoform (28 lbs.), lb.	0	19	2	0	17	0
Ipecacuanha, Cartagena, lb.	0	16	0	0	8	9
Rio, lb.	0	24	0	0	12	6
Menthol, Kabayashi, lb.	0	12	0	0	8	6
Morphine, hydrochlor, powder, ozs.	0	15	6	0	13	0
Olive oil, Spanish, tun	0	56	0	0	52	0
Opium, Turkey, druggists', 11 per cent., lb.	0	35	0	0	22	6
Persian, 10 per cent., lb.	0	22	6	0	22	0
Phenacetine, lb.	0	60	0	0	6	0
Phenazone, lb.	0	75	0	0	9	6
Phenolphthalein, lb.	0	40	0	0	8	0
Potassium iodide (1 cwt.), lb.	0	15	0	0	13	0
Potassium bromide	0	25	0	0	3	3
Quinine sulphate, German, second sands, oz.	0	6	0	0	1	1½
Saccharine, lb.	0	73	0	0	25	0
Salicylic acid, lb.	0	22	0	0	4	6
Salol, lb.	0	47	0	0	5	3
Saltpeter, English, refined, cwt.	0	50	0	0	43	0
Santonin, lb.	0	225	0	0	150	0
Sarsaparilla, fair gray Jamaica, lb.	0	2	1	0	1	8
Sodium salicylate, lb.	0	22	0	0	5	0
Sugar of milk	0	75	0	0	70	0
Sulphonal	0	45	0	0	14	0
Wax, fair, Jamaica	9	0	0	7	15	0

The year closes with much talk of extensive import tariffs after the war in which preference would be given to the Colonies and possibly the Allies.

LONDON ESSENTIAL OIL MARKET.

The following table indicates the general range of London quotations throughout the year for supplies of leading items of the essential oil classification per pound and spot, unless otherwise indicated:—

	Open. s.	d.	Close. s.	d.
Almond, s. a. p., foreign	12	6	34	0
English	23	0	35	0
Anise, star	4	9	3	4
Bay	10	6	13	0
Bergamot, c. i. f.	11	6	11	9
Cajuput, bottle	3	6	4	9
Cananga	9	0	10	0
Caraway, 0.910	6	0	9	0
Cassia, 80-85 c. a.	3	3	4	3
Cedarwood	0	10	1	0
Citronella, Ceylon, drums	1	6	1	7
Java	4	0	3	9
Clove, English	4	7	5	4
Eucalyptus, 70% cineol	1	3	1	9
amygdalina	0	11	1	0
Geranium, Bourbon	10	0	9	9
African	12	0	13	0
French	35	0	32	6
Juniper, berry	7	0	10	0
Lavender, French	12	0	14	0
Lemon	4	3	4	0
Lemon grass, oz.	0	2¼	0	2
Lime oil, distilled	2	6	6	6
distilled	7	6	8	0
Linaloe	12	0	12	0
Orange, c. i. f.	6	3	7	3
Otto of rose, as to brand	34s. @45s.		39s. @45s.	
Peppermint, American, bulk.	6	9	8	10
H. G. H.	12	6	14	6
Japan, dementh.	3	6	4	8
Palmarosa	11	0	12	0
Patchouli	14	3	20	0
Sandalwood	22	0	30	2
Spearmint	7	3	8	3

	High. s.	d.	Low. s.	d.
Almond, s. a. p., foreign	35	0	12	6
English	36	0	23	0
Anise, star	4	9	3	1
Bay	15	0	10	6
Bergamot, c. i. f.	14	3	9	9
Cajuput, bottle	6	0	3	6
Cananga	11	6	9	0
Caraway, 0.910	9	0	6	0
Cassia, 80-85 c. a.	4	6	1	11
Cedarwood	1	0	0	7½
Citronella, Ceylon, drums	1	8	1	5½
Java	4	6	3	9
Clove, English	5	4	4	2
Eucalyptus, 70% cineol	2	0	1	3
amygdalina	1	2	0	11
Geranium, Bourbon	11	0	9	0
African	15	6	11	0
French	35	0	30	6
Juniper berry	10	0	7	0
Lavender, French	16	6	11	0
Lemon	6	0	3	9
Lemon grass, oz.	0	2½	0	2
Lime oil, distilled	9	0	2	4½
distilled	9	6	6	6
Linaloe	14	0	11	0
Orange, c. i. f.	8	6	5	6
Otto of rose, as to brand	39s.	47s.	22s@29s	6d
Peppermint, American, bulk.	9	3	6	9
H. G. H.	14	6	11	6
Japan, dementh.	4	3	2	10
Palmarosa	12	0	8	3
Patchouli	21	0	14	3
Sandalwood	32	0	21	6
Spearmint	5	6	7	0

Commenting on the foregoing articles and others not listed, it may be said that short supplies assisted several oils to consider·ble price elevation. The turnover in the trade has not been at all bad, considering that we are in war times; any trailing off in requirements for luxury purposes having been counterbalanced by the demand in other consuming channels, especially confectionery. Some articles have been conspicuous by their almost entire absence, e. g., genuine cinnamon bark oil, savin oil, gaultheria wintergreen oil, and to a rather less degree, the betula variety. The shortage of synthetic substitutes has influenced the price of one or two of the oils, essential oil of almonds, for instance, restricted receipts from abroad also being a factor here. The quality of star anise and cassia oils has shown a decided improvement during the year, probably in anticipation of better official supervision at Hong Kong. Bergamot oil has not covered a wide range; an improvement set in in July and August, but it was lost in the autumn. Restriction on shipment of cajuput oil from Holland and higher freights brought a considerable ascension to spot value, the highest being in August-September. Caraway oil was in upward tendency throughout, reflecting the stringency in the Dutch seed conditions, and when the bigness of the 1915 outturn became evident, some smart additions to oil values became necessary. The steady upward move of clove oil has been in sympathy with the spice. Eucalyptus oil was unexciting until November-December, when a spurt in demand resulted in a flurry among dealers, whose aspirations for 2s. per pound (for 70 per cent.) were not attained, 1s. 9d. being the best realized. Geranium oil was without special feature, juniper berry oil was scarce, and the forecasts of extreme prices for French lavender oil, through labor difficulties, was not fulfilled. Some primary accessions to lemon oil values followed Italy's entrance into the war, but they received little encouragement from the consuming markets, whose apathy let prices down again. The absence of fresh arrivals of distilled lime oil enabled holders of spot stocks to realize at very high levels—the best in August at 9s.; and hand pressed was more plentiful. West Indian orange oil attracted rather more attention on the market than in previous years. Neroli oil suffered a decline as much from fall in demand as a rather better crop; 5s. 6d. @12s. per ounce in the latter months compared with 10s.@17s. in the early part of the year. Otto of rose was a declining market both before and after the new crop, but Bulgaria's participation in the was gave values a fillip which, although maintained, was not improved on. American peppermint oil profited from the delay in harvesting the new crop and the reluctance of producers to pass it to the consuming centers; spot for bulk rose from 6s. 9d. in August to 9s. 3d. in October-November; a few pence only has been lost since. Patchouli oil advanced through short supplies. Sibierica pine oil (a B. P. oil) has been very scarce; it was 1s. 6d. in January and 4s. or 4s. 6d. in September. Sandalwood oil has reflected the shortage and uncertainty in the wood consequent on the postponement of the Mysore auctions. Spearmint oil improved in the autumn. For any gaultheria wintergreen oil available 18s. per pound was easily obtainable in the later months of the year and 17s. 6d. for betula (compare 9s. in January). Reference to a few synthetic and other articles may be added; the advance in prices through the extreme scarcity are shown in the following:—

	Open. s.	d.	Close. s.	d.
Aubepine, lb.	10	6	22	0
Benzyl acetate	2	9	22	0

Coumarin	17	6	28 0
Heliotropin	6	9	12 0
Methyl salicylate	3	6	16 9
Methyl anthralate	15	0	25 0
Terpineol	2	0	3 0
Thymol	22	6	45s@52s 6d
Vanillin	23	0	45 0

Thymol has been satisfactorily produced in this country from thyme oil and has usefully filled the breach occasioned by the sparsity of the ajowan seed product. Several synthetics are being made here (e .g. vanillin); British manufacturers are feeling their way in this department with promising results. Terpineol, salicylic acid and derivatives, cinnamic aldehyde, artificial violet, citrol, citronellal, anethogeraniol, geranyl acetate and eugenol are among the newer articles of British production and indicate the direction of our manufacturers' thoughts.

ENGLISH GLYCERINE MARKET.

The most important event in the British glycerine trade in 1915 was the introduction early in the autumn of complete government control of stocks, production and deliveries. This war measure was indicated as probable by a temporary suspension, under special direction, in August of the execution of all orders for glycerine. Previous to this the only supervision of the industry was that exercised by the War Trade Department in the system of licenses for export to neutral countries. That the war had been running for over a year without any other interference with this essential explosives constituent speaks eloquently of the scope of British glycerine production and its ability to supply the government's requirements. Even in bringing into force their later policy of precaution the government did so with respect for all interests concerned and have since carried out the regulations with a desire to interfere with the trade as little as absolutely necessary, and to deal equitably with the execution of contracts. In the nine months or so before the new system became operative 80 per cent. crude had been quoted at £54@£57 per ton (except in the earliest days of January, when £60 was the price), while C. P. in five-ton lots, naked, in drums, was £100, export for the latter being £4 to £5 less. The distilling capacity of works was fully engaged as obviously the government's requirements were heavy, and relatively good prices were obtainable for all grades of refined; crude, however, was very quiet, owing to the great difficulty in getting permits to ship it out of the country. As the months advanced the heavy demand for dynamite description began to raise suggestions of a possible scarcity. In August the government's began to systematically inquire as to the stocks in the country and, as indicated, deliveries were stopped for a time. Then came the official regulations—resulting from conferences between the manufacturers and the Ministry of Munitions. Broadly, these rules required producers to make monthly returns of total stocks and of monthly surplus stocks available after meeting contracts. No home delivery, either on existing sale contract or of surplus stock, or of monthly output, can be made without the express license of the government; and, as already stated, export is strictly controlled by permits which are granted only very occasionally. In view of the government demands for the article the C. P. association advanced their schedule by £10 per ton on October 1, bringing £110 into effect for five-ton lots, naked, and £114 in tons in cases, and the sp. gr. 1.260 in quotation for 80 per cent. crude was given as £65. The government's action naturally brought anxious consumers of C. P. into the market. The difficulty of getting supplies off contract from the producers induced a good inquiry from second-hand holders, and for the small quantities they had in hand practically the C. P. convention scale was obtainable. There was at the close of the year very little in second hands who, hampered by the regulations, found trading very difficult. It may be added that the prices which the government settled in their negotiations with the producers as the figures they would pay were £87 for dynamite, £67 for saponification, and £59 10s. net for 80 per cent. crude, naked.

LONDON VANILLA AUCTIONS.

A very long interval occurred between the two auctions held in London, viz., in March and November. At each heavy supplies were offered. At the first event 2,730 tins were put up, largely comprising Seychelles, which sold at a decline of 2s.@ 3s. per pound, although the bulk was withdrawn under high limits; Madagascar was well competed for in the long varieties, which realized very fair prices, but short and medium were 2s.@2s. 6d. lower, and brown, foxey and spit, 3s. off. In November, again, 1,800 tins were forthcoming and demand was good, about 1,200 tins finding buyers. The Seychelles were of rather doubtful keeping quality, and taking this into consideration steady prices were obtained; Madagascar was well competed for and prices of the less preferable grades showed an advance. A summary of the goods offered and sold shows, as to quantities:—

	1915— Offered.	Sold.
Seychelles, tins	1,473	908
Madagascar	1,461	878
Bourbon	154	123
Mauritius	320	166
Ceylon	33	26
East India	16	16
West India	72	39
Java	3	..

As regards prices restored, so far as comparison can be made, having regard to variations in qualities and sizes, the following may be indicative of the course of values, the last auction in 1914 being also brought in when necessary:—

SEYCHELLES.

	Dec. 1914. s. d. s. d.	Mar. 1915. s. d. s. d.	Nov. 1915 s. d. s. d
Fair to good long, lb.	12 6@13 6	8 0@11 0	7 9@9 0
do medium to long	10 6@11 6	5 6@ 8 6	6 6@8 3

MADAGASCAR.

	Mar. 1915. s. d. s. d.	Nov. 1915. s. d. s. d
Fair to good long, lb.	7 9@12 0	8 3@10 0
do medium to long	6 0@ 7 6	7 0@ 9 0

BOURBON.

	Dec. 1914. s. d.	Nov. 1915. s. d. s. d
Fair to good medium to long, lb.	13 0	8 0@10 6

While the first sales were confined to Seychelles and Madagascar, at the second auction of the year (November) Mauritius also sold in substantial quantity, the rates including:—

	s. d. s. d
Mauritius, fair long, lb.	8 9@11 6
do medium to long	6 3@ 8 6

The effect of the long period between the public events was to make the private market somewhat disjointed, and prices in the interregnum were largely a matter of negotiation.

NORWEGIAN CODLIVER OIL.

The Lofoten cod fisheries gave a better result in 1915 than during the previous eight years. The production of codliver oil was not so large, however, as during some of the years when the livers were fatter.

The following table shows the result of the Lofoten catch in 1915, compared with previous years:—

	Fish.	Barrels.
1915	16,000,000	10,905
1914	11,700,000	8,290
1913	10,200,000	5,203
1912	15,100,000	10,382
1911	10,900,000	6,709
1910	13,900,000	11,601
1909	16,800,000	17,243
1908	13,300,000	17,323

The catch in the surrounding districts and in the southern districts was very fluctuating, partly very good and partly very poor.

At one time prospects for the Finmarken catch were most promising, but long continued stormy weather became a most discouraging impediment in the fishing operations in this part of the country and, in addition, the fish were driven out to sea by large shoals of seals in many places.

The following table shows this year's catch in Finmarken and the crop of oil compared with previous years:—

	Fish.	Barrels.
1915	16,000,000	9,781
1914	23,500,000	12,341
1913	34,700,000	19,595
1912	36,700,000	25,060
1911	29,800,000	16,861
1910	23,300,000	11,532
1909	19,200,000	8,280
1908	14,900,000	10,895

The return of all Norwegian cod fisheries amounted:—

	Fish.	Barrels.
1915	66,800,000	45,620
1914	81,500,000	49,285
1913	76,000,000	41,606
1912	99,200,000	65,700
1911	64,400,000	37,343
1910	55,700,000	35,365
1909	56,500,000	43,500
1908	48,200,000	50,950

The livers yielded during the year between 37 and 47 per cent. of oil.

Prices for steam refined oil advanced from the beginning of the year and at times went up by jumps and bounds. This strong upward movement was due chiefly to an extraordinarily great demand from Germany and Austria.

At the beginning of the year prices for steam refined oil were $21 f. o. b. Bergen, but they jumped in February to $29 and in March to $47. Later on it dropped to $37, but in June it was $52 and in July $70. A decreased demand in August and in the latter part of the year created a somewhat weaker tendency; but at the end of the year the price was $72. In consequence of the great demand from Germany and Austria for industrial qualities, prices for these oils were much higher than previously heard of. Exports of steam and refined oil are reported to have amounted to 104,000 barrels last year, against 53,080 barrels in 1914.

Stocks in Norway of the industrial qualities as well as of medicinal oil are at present very small.

NEWFOUNDLAND CODLIVER OIL.

The following table shows the prices realized in Newfoundland for codliver oil during the 1915 season:—

	Barrel.
April	$30.00
May	35.00
June	38.00
July	70.00

Results of the Newfoundland summer fishery became known in September of last year, when considerable stocks of Newfoundland codliver oil came to hand, and prices receded to $60@65 a barrel and held at that price during October and November, but now have advanced to $75 a barrel. Stocks at present are almost completely exhausted.

SALONICA OPIUM MARKET.

The year 1915 was somewhat uninteresting as regards the export of Macedonian opium. The crop in Serbian Macedonia yielded about 1,500 cases, but for reasons, the purpose of which we are still unable to understand, the Serbian government put drastic restrictions on the freedom of purchasing opium which had hitherto been enjoyed in Serbia.

The result of this was unfortunate, for, from the month of June down to the invasion of the country in November, only 478 cases left Serbia, and the balance of about 1,000 cases remaining in the country will undoubtedly go north to the Central Powers.

Greek Macedonia produced something like 100 cases. The quality of the crop, as regards morphine, was fairly good, the average percentage varying between 13½ and 14 per cent.

Great Britain was a buyer at higher prices than any other country, the import of Turkish produce being strictly prohibited.

Prices in July and August were 23s. 6d. per pound, c. i. f. London, for 14 per cent. morphine, and 25s. in September; but in October, following the crossing of the Danube by the Germans operating against Serbia, they suddenly advanced to 32s. 6d., c. i. f., which figure was freely paid in London. The occupation of Serbian Macedonia by the Bulgars further raised this to 37s. for 14 per cent. morphine, which price is still that of the London market.

Everything leads to the belief that the present abnormal price has not yet reached its highest point, as the import of Turkish opium, as far as one can see, will still be prohibited by Great Britain.

The number of cases of Serbian opium shipped to the United States is small, but there is still a fairly large stock of the Turkish product in America on consignment, shipped through different ports, notwithstanding the stringent measures of the allied fleets to seize on its way all opium from an enemy country.

The present stocks at Salonica of opium of Greco-Serbian Macedonia is about 60 cases, but there are, however, something like 250 cases of Turkish gum also in stock, which it is very difficult for the holders to ship anywhere.

No information is obtainable from Serbian Macedonia and we do not know whether the October sowings were actually made or not. Communication with the interior is impossible, owing to the state of war, and consequently nothing can be learned regarding the present conditions of any of the 1916 crops.

CARAWAY SEED IN HOLLAND.

Official statistics show that only 3,858 acres were planted with caraway seed in 1915, against 5,285 acres in 1914 and 5,527 acres in 1913. Consequently, a considerably smaller yield was all that could be expected. Rainy and cold weather just before cutting exerted bad influence on the quality of the seed, which turned out rather dark.

During the whole year the demand was satisfactory and generally a firm tone prevailed. Top prices were paid in October and November on a sudden and great demand from Austria-Hungary. Old stocks of 1913 and 1914 crop seed decreased rapidly and, at the end of the year, stocks of 1913, 1914 and 1915 seed were smaller than ever before. The demand fell off in December, but no doubt prices will rise again as soon as demand increases.

About the new (1916) crop little can be said. The planted area is about the same as in 1915. In the autumn the young plants were in good condition, but nobody knows what effect the rainy weather of these last few months will have.

Prices in Dutch guilders per bag of 50 kilos f. o. b. Rotterdam, for the twelve months of 1915, are given below:—

	Gilders, per bag.
January	17.50@18.00
February	18.00
March	19.00
April	19.00@18.75
May	18.75@19.50
June	19.50@20.75
July	21.50@22.00
August	20.50@21.25
September	21.00@21.25
October	23.50@27.25
November	29.50@29.75
December	27.50@26.50

Exports of caraway seed from Holland during 1912 and seven years previous follow:—

	Kilos.
1905	4,669,000
1906	5,952,000
1907	6,286,000
1908	5,429,000
1909	8,312,000
1910	6,149,000
1911	8,988,000
1912	4,298,000

New York Chemical Market

Price changes of a decisive character have featured the chemical market during the year under review. There is scarcely an item that has not felt the pressure of increased buying power, and there is scarcely a chemical that has not sold at a record price. Domestic makers have been called upon to supply not only home requirements but the chemical demands of the world, and the market as a whole has never been in such an oversold condition. Soda ash, the great basic material for heavy chemicals, and many other descriptions has been subjected to an unprecedented demand for home and export, and a steady advance in prices has been reflected all through the various soda markets. One by one these items have been caught in the whirl of increased business, so that prices have been a secondary consideration. In caustic soda, the inquiry has been enormous and we have frequently heard of export orders amounting to 10,000 tons or more booked at unheard of figures. At home, the sales of caustic soda were larger than ever before because items like picric acid, in which caustic soda is a constituent, the export demand has been sufficient to take the entire output. Bleaching powder production for 1916 was sold up by last November. The inability of foreign consumers to secure bleach supplies from European sources has shifted the demand to the American market and producers have not only been called upon to satisfy these requirements, but to meet a greatly augmented home demand, brought about by the restricted imports which ordinarily would come from England, France and Germany. Abnormally high prices have characterized the acid markets and the sold up condition of output has made it very difficult for prospective buyers to get satisfaction unless they were shrewd enough to book contract orders early in the year. After July there was a pronounced scarcity of offerings of acetic, muriatic, nitric and sulphuric acids, and quotations during this period were merely nominal so far as additional spot offerings were concerned. The potash products have recorded the most spectacular advances under our heading of miscellaneous chemicals. The restriction of importations of basic supplies from Germany has resulted in a gradual depletion of domestic stocks, and prices have hardened materially under the scarcity of offerings. The high prices of muriate of potash have not only been reflected in chlorate, caustic and the other forms of potash, but in oxalic acid, refined saltpeter and various outside chemicals into which muriate is a base or partly a basic product. Acetate of lime has advanced steadily under a greatly expanded inquiry, principally from the acid and acetone makers. Copper sulphate advanced in sympathy with the metal, and on greatly improved buying for foreign account. The strength in the lead, zinc, tin and antimony markets during the latter part of the year had a stimulating effect on chemicals derived from these metals, and frequent upward revisions were recorded in nitrate of lead, acetate of lead, sulphate of zinc, chloride of zinc and tin and antimony oxides.

Prospects for 1916 are not encouraging for any material decline in prices, taking the entire market into consideration. It is true that domestic production in certain lines is being increased, but there is hesitancy in materially increasing output because there is no confidence expressed in the maintenance of prevailing values after the European conflict is brought to a close. Jobbers and second hand sellers have cleaned up fortunes in playing the chemical market through its billous period, but experienced dealers are convinced that the prospective establishment of peaceful relations abroad will precipitate a "smash" in domestic values that will be quite as spectacular as the historical advance of 1915. Below is a compilation of data and prices interesting to the chemical trade.

HEAVY CHEMICALS.

BICARBONATE OF SODA.

Contract orders for this chemical were booked on the basis of 1@1.10c. per pound until October, when the market was advanced to 1.20@1.30c. The upward revision was due to a stronger feeling in basic material and an improved inquiry for home and foreign consumption. The change in prices was the first to have been recorded in several years, and was the only salient feature noted to the situation.

BLEACHING POWDER.

Prices for bleaching powder have shown a steady advance during the entire year, so far as the spot market is concerned. Increased demand for export account was noted as early as April, and the foreign inquiry was augmented from that month forward. Domestic consumers were offered contracts at 1¼c. early in the year, and those who were shrewd enough to place resting orders were in a position to dispose of any surplus at a 9c. profit in December. Domestic producers were able to sell their output at the best prices ever recorded. Following is a table of spot prices per pound for the past four years. The figures are based on the closing quotations each successive week in the pound basis:—

	1912— H.	L.	1913— H.	L.
January	1.22½	1.20	1.35	1.30
February	1.22½	1.22½	1.40	1.35
March	1.25	1.22½	1.40	1.30
April	1.22½	1.20	1.35	1.30
May	1.25	1.20	1.30	1.22½
June	1.60	1.30	1.25	1.25
July	1.40	1.35	1.25	1.20
August	1.35	1.30	1.20	1.20
September	1.35	1.25	1.25	1.20
October	1.35	1.30	1.25	1.20
November	1.35	1.30	1.20	1.20
December	1.35	1.35	1.22½	1.20
Year	1.60	1.20	1.40	1.20

	1914— H.	L.	1915— H.	L.
January	1.25	1.15	1.37½	1.30
February	1.20	1.15	1.37½	1.30
March	1.20	1.15	1.37½	1.30
April	1.20	1.17½	1.40	1.40
May	1.25	1.20	1.40	1.30
June	1.25	1.20	1.37½	1.37½
July	1.20	1.20	1.40	1.37½
August	4.00	1.20	2.00	1.50
September	3.00	2.00	2.50	1.75
October	2.00	2.00	4.50	2.50
November	2.00	1.75	6.00	4.00
December	1.50	1.37½	11.00	6.00
Year	4.00	1.15	11.00	1.30

CAUSTIC SODA.

Contracts for domestic consumption were placed at 1.45c. per pound for 76 per cent. on the basis of 60 per cent. In April the purchase of 30,000 tons for export advanced the market to 1.85c., while the buying of 10,000 tons early in May found values up to 3½c. per pound flat. Incidentally demand increased materially for home consumption, especially from the picric acid makers, and the market continued its upward tendency over the balance of the year. In August a level of 5½c. per pound was reached, and the market held at 5c. per pound or better until December.

In the following table are the high and low prices for 88@92 per cent. caustic potash for each month during the year 1915. The prices are on the pound basis and compiled from the close of each successive week:—

	High.	Low.
January	9	8
February	9	8
March	9	8
April	25	20
May	23	23
June	38	30
July	40	40
August	39	38

September	39	38
October	40	39
November	60	41
December	60	60
Year	60	8

SAL SODA.

Makers offered contracts at 60c. per hundred pounds f. o. b. works in barrels during most of the year. In December, however, the strength of soda ash forced an upward revision, and the market was established at 85c. to $1 per hundred pounds, which price prevailed at the close.

SODA ASH.

Contracts were booked at 57½c. per hundred pounds, basis of 48 per cent., until September, when an unprecedented demand developed for home and export accounts. The buying was sufficient to tax capacity of domestic makers, and orders were booked free enough to give the market an oversold appearance. Prices mounted steadily on contract for home consumption until $1.85 per hundred pounds, basis of 48 per cent., was reached in December. Car lots on spot brought as high as 4c. per pound flat in December, and large producers were forced to withdraw from the market, owing to their inability to meet any additional requirements for immediate shipment.

ACIDS.

ACETIC ACID, 28 PER CENT.

The lowest prices for this acid were established during the first three months of the year. After this period heavy buying for home and export, combined with the strength in acetate of lime, forced the market steadily upward, and at the close no additional quantities were obtainable. The following table shows the high and low spot prices of acetic acid in the New York market for each month during the past year. These figures are based on the closing quotation each week and represent the pound basis in cents:—

	1914 H.	1914 L.	1915 H.	1915 L.
January	1.77½	1.62½	1¾	1¾
February	1.77½	1.62½	1¾	1¾
March	1.65	1.50	1¾	1¾
April	1.65	1.50	2	1¾
May	1.65	1.50	2	2
June	1.65	1.50	2½	2
July	1.65	1.50	2¾	2½
August	1.65	1.50	2¾	2¾
September	1.65	1.50	3	2¾
October	1.65	1.50	3¼	3
November	1.65	1.50	5	3¼
December	1.90	1.75	7	3¾

MURIATIC ACID (18 DEGREES.)

Contract prices at the beginning of the year were 1.15c. per pound for the 18 degrees. It is asserted that leading manufacturers disposed of practically their entire output at this price and a shade higher. During the latter half of the year there was a great scarcity of additional offerings, and the stringency increased as the year progressed. Actual spot prices were unobtainable, and the market drifted into a nominal condition. At the close the nominal price was 1¾@2c. per pound for contracts.

NITRIC ACID (36 DEGREES)

Contracts at the beginning of the year were offered at 3⅞@4c. per pound in carboys, and practically the entire output was sold ahead. As the year progressed additional offerings became smaller, and by June the market developed a nominal position with no accurate spot prices obtainable. Demand from the explosive trades was steady and contract allotments were absorbed with no come back for second hands. Large makers withdrew from the market early in the year, and new buyers were often placed in an embarassing position. At the close the market was still nominal, with no spot figures obtainable, and only a nominal quotation for contracts of 6¼@7c. per pound.

OXALIC ACID.

The restriction of foreign importations of this acid brought about a very limited supply for domestic consumption, as home producers were unable to increase their output materially on account of their inability to get crude materials. After March the market mounted to higher levels steadily until the close of the year. The following table shows the high and low spot prices of oxalic acid per pound in the New York market for each month during the past year. These figures are based on the closing quotation each week and represent the pound basis in cents:—

	1914 H.	1914 L.	1915 H.	1915 L.
January	7½	7	13	12½
February	7½	7⅝	13	12½
March	7⅝	7⅝	13	12½
April	7¼	7¼	19	18
May	7⅝	7¼	19	19
June	7¼	7¼	24	19
July	7¼	7¼	30	25
August	20	12	40½	35
September	21	20	44½	40
October	18	14	48	41
November	14	13	51	50
December	13	13	51	50
Year	20	8	51	12½

SULPHURIC ACID.

The sulphuric acid industry in 1915 presented both remarkable and normal features. In spite of the abnormal demand a great deal of sulphuric acid was consumed in the factories where it was made. The trade in strong acids was much more active on account of the demand for explosives and other war munitions, but this demand came only after the first quarter of the year and was very strong during the last six months. Before that time some acid plants were shut down. The estimated production of sulphuric acid of 50 degrees, 60 degrees, and 66 degrees strengths in 1915 is 4,007,000 tons, expressed in terms of 50-degree acid. In addition, there was a production of nearly 49,000 tons of fuming acid and oleum. This is an increase of 6½ per cent. in the three common grades, but the production of fuming acid and oleum more than doubled. These figures include by-product acid produced at copper and zinc smelters amounting to 952,000 short tons of 60-degree acid. Compared with the production of 1914, this is an increase of 25 per cent., or 191,000 tons. The prices per ton of the stronger grades of acid, especially 60-degree, 66-degree and oleum during the last part of the year ranged far above those of 1914, and the total value of the output will therefore be in excess of what it was in that year. The estimates are based on official returns from 95 per cent. of the producers, and estimates of the remaining 5 per cent. It is believed that the figures are conservative and that they will be increased when complete returns are received.

The 66-degree test opened the year at 1c. per pound, but demand was broad enough to absorb production, and many makers were able to dispose of their output for the entire year. This had a tendency to strengthen prices and the market hardened to 2c. by June and 2½ @3c. per pound by October. The scarcity of aditional offerings was pronounced, and the market during the last quarter was an entirely nominal affair.

TARTARIC ACID CRYSTALS.

The price movements of this acid have been in sympathy with all other acids. The lowest prices were established early in the year and the highest prices at the close. Restricted importations of both acid and argols from Italy, France and Spain have been the principal features of strength to the situation. The subjoined table shows the highest and lowest quoted prices of tartaric acid crystals in the New York market for each month since January, 1912, and also the highest and lowest points touched in each year from 1912 to 1916. The figures are based on the closing quotations each successive week:—

TARTARIC ACID CRYSTALS.

	1912. H.	1912. L.	1913. H.	1913. L.	1914. H.	1914. L.	1915. H.	1915. L.
Jan.	30¾	30¼	30¾	30¼	31½	31½	40¾	37½
Feb.	30¾	30¼	30¾	30¼	31½	31½	40¾	37½
March	30¾	30¼	30¾	30¼	31½	30½	40¾	37½
April	30¾	30¼	30¾	30¼	30½	30¼	39	38
May	30¾	30¼	30¾	30¼	30¼	30¼	40¾	39
June	30¾	30¼	30¾	30¼	30¼	30¼	48	48
July	30¾	30¼	30¾	30¼	30¼	30¼	48	44
Aug.	30¾	30¼	30¾	30¼	75	30¼	46½	46½
Sept.	30¾	30¼	32¼	30¼	80	70	46½	46½
Oct.	30¾	30¼	32¼	31¾	55	50	47	46½
Nov.	30¾	30¼	32¼	31¾	48	42¾	52	47
Dec.	30¾	30¼	32¼	31¾	44	40¾	55	49
Year	30¾	30¼	32¼	30¼	80	30¼	55	37½

MISCELLANEOUS CHEMICALS.

ACETATE OF LIME.

An enormous demand for acetone and acetic acid for home and foreign consumption has kept this market in upward tendency during the entire year. Regular consumers were given a contract price, but at the close outside interests experienced difficulty in securing additional offerings on account of the sold up condition of the market. The following table gives the high and low contract prices of acetate of lime in the New York market for each month since January, 1911, and also the highest and lowest points touched in each year from 1912 to 1916. The figures are based on the closing quotations each successive week:—

	1912. H.	1912. L.	1913. H.	1913. L.	1914. H.	1914. L.	1915. H.	1915. L.
Jan.	2.30	2.25	2.55	2.50	1.80	1.75	2.05	2.00
Feb.	2.30	2.25	2.55	2.50	1.55	1.75	2.05	2.00
March	2.30	2.25	2.55	2.50	1.55	1.50	2.05	2.00
April	2.30	2.25	2.55	2.50	1.55	1.50	2.56	2.50
May	2.55	2.50	2.55	2.50	1.55	1.50	3.05	2.50
June	2.55	2.50	2.55	2.50	1.55	1.50	3.55	3.50
July	2.55	2.50	2.55	2.50	1.55	1.50	3.55	3.50
Aug.	2.55	2.50	2.55	2.50	1.55	1.50	3.80	3.75
Sept.	2.55	2.50	2.55	2.50	1.55	1.50	4.05	4.00
Oct.	2.55	2.50	2.05	2.00	1.55	1.50	4.55	4.00
Nov.	2.55	2.50	2.05	2.00	1.80	1.75	5.10	4.50
Dec.	2.55	2.50	2.05	2.00	2.05	2.00	6.10	5.00
Year	2.55	2.25	2.55	2.00	2.05	1.50	6.10	2.00

ALUM.

Difficulty in getting potash has prevented a normal production of potash alum, and while the ammonia and potash grades have usually been obtainable at or near the same prices, the latter has commanded as much as 6c. per pound premium over the ammonia grade. The trend of ammonia alum has been gradually upward, the opening price being 2½c. per pound and the close 4c. per pound.

ARSENIC (COMMERCIAL WHITE).

The year 1915 saw another increase in the output of white arsenic, and the estimated production for the twelve months is reported to have been 5,195 tons (of 2,000 pounds) with a value at the smelters of 2 cents a pound or a total of $207,780. The estimate is based on the known production for the first ten months of the year and the probable output during November and December. This output is an increase of more than 11 per cent. over the 1914 production and 65 per cent. over the 1913 output. All white arsenic made in this country is a by-product in the smelting or refining of the non-ferrous metals, and naturally the larger part is saved at the Western plants. The demand is far below the possible production, which could probably be made treble or quadruple the present output if prices were sufficiently encouraging. The largest uses for arsenic are in the manufacture of insecticides, such as paris green, lead arsenate, etc.; in glass making, and as a weed killer. Small quantities are used in shot, medicine and dyes. Below is a table of spot prices in the New York market for each month since January, 1911, also the highest and lowest points touched in each year from January 1, 1912, to December, 31, 1915, inclusive. These figures are based on the closing quotations each successive week:—

	1912 H.	1912 L.	1913 H.	1913 L.
January	2.62½	2.45	6	4¾
February	2.75	2.60	4½	4¼
March	3.75	2.75	4⅝	4⅛
April	3.75	3.75	4⅛	4.00
May	4.00	3.75	4	3⅝
June	4.12½	4.05	3⅝	3⅝
July	4.25	4.00	3⅝	3⅝
August	4.87½	4.25	3⅝	3¼
September	5.00	4.50	3.25	3.17½
October	5.50	5.00	3.20	3.00
November	5.00	5.00	3¼	3.00
December	5.00	5.00	3¼	3.00
Year	5.50	2.45	6	3.00

	1914 H.	1914 L.	1915 H.	1915 L.
January	2⅝	2⅝	4	4
February	3⅛	3	4	4
March	3⅛	3	4	4
April	3	3	4	4
May	3	3	4	4
June	3	3	3¾	3¾
July	3	2.80	3¾	3½
August	5	2.80	3¾	3¾
September	5	5	3¾	3½
October	5	5	3½	3½
November	5	5	3½	3½
December	4½	3⅞	4½	3½
Year	5	2⅝	4½	3½

BLUE VITRIOL.

After opening the year at normal prices, the market advanced under an increased demand brought about by domestic producers being called upon to supply foreign inquiries of considerable magnitude. The restricted production in Great Britain oiwng to the economical use of copper metal and the inability of Germany to export has shifted the bulk of the buying for France, Italy and other foreign countries to the United States. The advanced price of copper metal was another strengthening influence. The following table shows the highest and lowest quoted prices of blue vitriol per pound in car lots for each month since January, 1912, and also the highest and lowest points touched in each year from 1912 to 1916. The figures are based on the closing quotations each successive week:—

	1912. H.	1912. L.	1913. H.	1913. L.	1914. H.	1914. L.	1915. H.	1915. L.
Jan.	4.90	4.80	5½	5½	4.84	4.80	4.55	4.35
Feb.	4.90	4.90	5½	5¼	4.80	4.80	4.55	4.35
Mar.	5.10	4.90	5¼	5¼	4.80	4.80	4.55	4.35
Apr.	5¼	5¼	5¼	5¼	4.80	4.80	6.75	6.00
May	5½	5¼	5¼	5¼	4.80	4.65	7.00	6.75
June	5½	5¼	5¼	5¼	4.65	4.65	7.25	7.00
July	5½	5½	5¼	5¼	4.65	4.50	7.25	7.25
Aug.	5½	5½	5½	5.00	4.50	4.50	7.25	7.25
Sept.	5½	5½	5.00	5.00	4.50	4.50	7.25	7.25
Oct.	5½	5½	5.00	5.00	4.50	4.35	7.00	6.50
Nov.	5½	5½	5.00	5.00	4.35	4.35	7.25	6.50
Dec.	5½	5½	5.00	5.00	4.35	4.35	13.00	7.00
Year	5½	4.90	5½	5.00	4.80	4.35	13.00	4.35

In reference to the metal, it may be stated that the production of copper in the United States in 1915 passed all previous records, according to official reports. Preliminary figures and estimates have been collected and reports received from all plants known to produce blister copper from domestic ores and refined copper. At an average price of about 17.3 cents a pound the output for 1915 has a value of $236,000,000, compared with $152,968,000 for the output of 1914. The figures showing smelter production from domestic ores represent the actual production of most of the companies for eleven months and an estimate of the output for December. The figures of a few companies for November were not available, and these companies furnished estimates for the last two months of the year. According to the statistics and estimates received, the output of blister and Lake copper was 1,150,137,000 pounds in 1914. The output of refined copper from primary sources, domestic and foreign, for 1915 is estimated at 1,647,000,000 pounds, compared with 1,533,781,000 pounds in 1914 and with the previous record production of 1,615,000,000 pounds in 1913.

BRIMSTONE.

Prices for this material have remained stationary at $22@22.50 per long ton over the year. The inside figure represented New York delivery and the outside Baltimore. Foreign shipments have been restricted on account of the unfavorable conditions surrounding export trade. While official figures regarding production have not been compiled, interesting information is at hand for 1914. It is stated that the marketed production of sulphur in the United States in 1914, according to the United States Geological Survey, was 327,634 long tons, valued at $5,954,236, the greatest in the history of the industry. This production was 16,044 long tons greater than that of 1913 and showed an increase in value of $474,387. The sulphur mined is not included in these figures. In 1914 four States produced sulphur, namely, Louisiana, Texas, Nevada and Wyoming. The total imports for 1914, entered for consumption, were 26,135 long tons, valued at $477,937, of which 23,610 tons, valued at $398,984, were crude sulphur. Corresponding figures for 1913 were 22,605 long tons, valued at $448,564, of which 15,122 tons, valued at $286,209, were crude sulphur. In 1914 the great bulk of the imports was, as usual, from Japan. In 1914 the exports were 98,143 long tons, valued at $1,807,334, and they would probably have been considerably greater but for the excess of exports over imports amounting to 72,108 long tons, the balance of trade in favor of the United States being $1,329,397.

CHLORIDE OF BARIUM.

The open market has been kept in limited supply of this material throughout the entire year. While there was some domestic material produced, consumers have always depended upon Germany for the bulk of their supplies. The following table shows the high and low spot prices of chloride of barium per ton in the New York market for each month during the years 1914 and 1915. These figures are based on the closing quotation each week, using the ton basis in dollars and cents:—

	1914 High.	1914 Low.	1915 High.	1915 Low.
January	32.00	32.00	50.00	50.00
February	32.50	32.00	50.00	50.00
March	32.50	32.00	50.00	50.00
April	32.00	32.00	65.00	60.00
May	32.00	32.00	67.50	60.00
June	32.00	32.00	70.00	67.50
July	32.00	32.00	100.00	70.00
August	100.00	32.00	110.00	100.00
September	150.00	130.00	100.00	95.00
October	100.00	90.00	100.00	85.00
November	90.00	60.00	115.00	90.00
December	65.00	53.00	115.00	100.00
Year	150.00	32.00	115.00	50.00

CARBONATE OF POTASH CALCINED 80 AND 85 PER CENT.

Inability to get supplies from Germany forced a steady advance in local prices for this item. At the beginning of the year, 5c. per pound was quoted on spot and at the close sales were made at 45c. per pound. The advance was stead from March forward, and in December scarcely any material was obtainable on spot.

CAUSTIC POTASH.

Inability to get importations from abroad and restricted domestic production on account of scarcity and high prices of muriate of potash have caused a sharp advance in all grades of caustic potash. The year opened at 8c. per pound and closed at 60c. for the 88@92 per cent.

CHLORATE OF POTASH.

The contract price in January was 15c. per pound. Demand during the spring and summer months was enormous for home and export and prices were steadily lifted both for shipment and spot. In April the market had reached 30c. and in September 35c. The closing price was 45@50c. per pound, according to seller.

CHLORATE OF SODA.

The year opened with contracts offered at 14c. per pound, f. o. b. works. Early in the fall the contract price was advanced to 25c. per pound to consumers direct. Spot prices for export touched 50c. per pound.

REFINED SALTPETER.

The scarcity and high prices of muriate of potash and nitrate of soda have forced prices of refined saltpeter to unheard-of levels. Makers have been at a great disadvantage and it is believed that consumption has decreased under the stringent conditions prevailing, particularly during the last quarter of the year. The following table shows the high and low spot prices of refined saltpeter in the New York market for each month during the years 1914 and 1915. These figures are based on the closing quotation each week at the pound basis for granular in car lots at cents per pound:—

	1914 High.	1914 Low.	1915 High.	1915 Low.
January	5¼	4¾	8	7
February	4¾	4⅝	8	7
March	4⅝	4⅜	8	7
April	4⅜	4⅜	12¼	12
May	4⅜	4⅜	12¼	12¼
June	4⅜	4⅜	15	12¼
July	4⅜	4⅜	17	17
August	8	4¾	18	18
September	12	9	18	18
October	9	8	18	18
November	8	7	38	18
December	8	6¾	38	35
Year	12	4¾	38	7

ANTIMONY MARKET AND PRODUCTION RECORD.

Antimony prices in 1915 were probably the highest known since the metal became a regular article of commerce. The high prices led to the largest production the United States has made and probably the same statement is true for the world's production.

According to preliminary figures collected for the United States Geological Survey by Frank L. Hess the production of antimony ores in the United States is estimated to have been about 5,000 tons, containing 2,000 tons of antimony, valued at about $325,000. The largest previous domestic production was in 1892, when 150 tons of metal was produced in San Francisco from Nevada ores and 380 tons of ore carrying 55 per cent. of antimony was exported. Practically all operations of the past year were new, most were small, and they were widely scattered, so that it is difficult to obtain close figures immediately after the close of the year.

Antimony, which in July, 1914, had been down to a monthly average price of 7.11 cents for Cookson's, and from 5.44 cents upwards for other brands, rose gradually, though unsteadily, to the end of 1915, when Chinese, Japanese and American antimony were quoted at about 40 cents a pound.

Quotations for Cookson's antimony ceased in May, 1915, some time after an embargo had been declared against the shipment of antimony metal or ores from the British possessions, and 50 cents a pound is said to have been paid for it about June 1, when Chinese was selling at about 35 cents or less.

In the fall American antimony appeared on the market for the first time in many years. At first it sold slightly below Chinese and Japanese, but was soon quoted at the same price. Miners and smelters, apparently thinking that the high prices would be temporary, did not begin production as quickly as they otherwise might have done, but before the close of the year properties in Alaska, California, Idaho, Nevada, Oregon, Utah and Washington were producing.

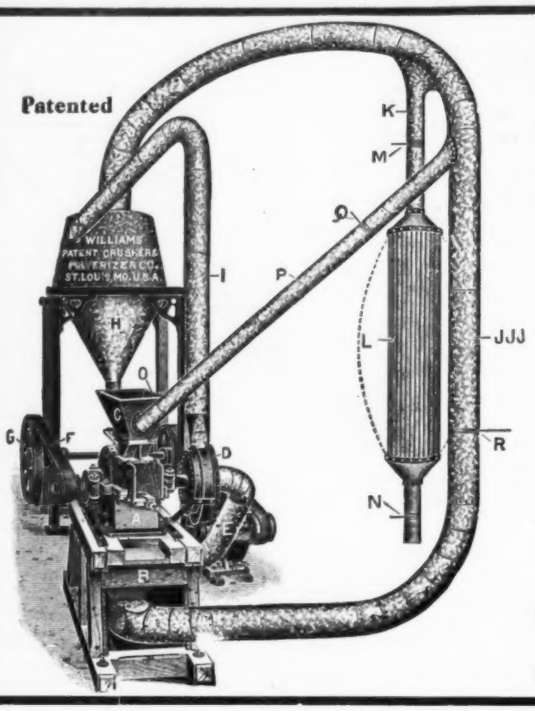
Prices for ores ranged from $1 to $2.10 per unit for antimony. At first only ores carrying 50 per cent. or more antimony were in demand, but before the close of the year 20 per cent. ores were being shipped from Nevada.

From Alaska, according to data collected by Alfred H. Brooks, about 685 tons of stibnite ore carrying 58 per cent. antimony was produced in the Fairbanks district from properties on Eva, Vault, Treasure and Chatham creeks. It is reported that 132 tons were shipped from Nome, but it seems probable that more was mined.

The largest production was made from deposits near Wild Rose Spring, on the northwest slope of Telescope Peak in the Panamint range, California. These deposits have been known for many years, but have been too far from railroads for profitable exploitation until the past year, when prices were high, and a branch railroad was built to Trona, on Borax Lake, within about twenty-five miles of them. The deposits contained considerable antimony ocher, as well as stibnite, and were mined by the Merchants' Finance Company (Western Metals Company). The same company operated deposits thirty miles northeast of Mojave, which are ten miles from the Southern Pacific Railroad at Neuralia, in Kern county. Other desposits were mined in California at many points in Kern county, in the eastern end of San Benito county, and on Moore's Flat near Grass Valley. In Nevada considerable quantities were mined at many points, mostly in the northwest quarter of the State, with Lovelock as a center, but ranging from Pass Canyon in the Pine Forest range southward to the vicinity of Tonopah and eastward to Joy.

Oregon, Washington and Idaho produced small tonnages of ore and in Arkansas a company was organized to work old properties west of Gilham.

The tendency has been for some companies to go to an expense for mine development, machinery and mills, not wholly warranted by the circumstances. The present high prices are necessarily temporary. The Chinese deposits are extensive, and worked by very cheap labor, and other deposits are being developed in other parts of the world, and as soon as the war is over, and possibly before, prices will probably drop to a level with or close to those of 1914.



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LONDON CHEMICAL MARKET.

The table below is eloquent of the stringent conditions governing the market in 1915. It shows the range of fluctuations in articles usually quoted by London merchants. The very considerable accessions to values reflect the restrictions on supplies recently, as to home production, from shortage and high cost of raw materials and from diminished labor; and, as to imported articles, from curtailed shiproom and appreciation in freight charges. Quantity of finished products available throughout the year as inadequate to demand and at times export trade had to be passed by to satisfy home requirements. Buyers generally placed business for immediate or early future delivery, but execution thereof to date was always problematical, works being unable to keep full up to the orders, inland railroad facilities being uncertain, shipping accommodations from abroad for imported goods being much reduced and the docks at home ports congested. Despite activity in old lines, some chemical plants have turned out a few articles hitherto imported. Of course the State has had first claim on all manufacturing and chemical war material has been wanted in ever-increasing quantity and the factories making the same have given precedence to the nation's requirements over those of ordinary trade. In the foregoing circumstances the large expansion in prices shown in the annexed schedule will be readily understood:—

	Open— £	s.	d.	Close— £	s.	d.
Acetic acid, glacial, ton..	45	0		137	10	0
Alum, lump, ton.....	7	2	6	10	10	0
Ammon. sulph., 25%, ton..	11	5	0	17	0	0
Arsenic, Cornish, ton.....	19	0	0	29	0	0
Benzole, 90%, gal.....	0	0	10½	0	1	1
Bleaching powder, ton....	8	10	0	*20	0	0
Boracic acid, crystals, cwt	1	10	0	2	3	0
Borax, crystals, cwt.....	0	18	0	1	5	0
Carbolic acid—						
crude, 60%, gal.....	0	2	11	0	3	6
crystals, 40%, lb.....	0	1	3	0	1	6
Citric acid, lb.....	0	2	6½	0	2	8
Copper sulphate, Liverpool, ton	21	12	6	45	0	0
Cream of tartar, 98%, cwt.	7	5	0	9	5	0
Iron sulphate, ton.....	2	7	6	4	10	0
Oxalic acid, lb.....	0	0	8	0	1	4
Potashes, Montreal firsts, cwt.	3	7	6	7	15	0
Potassium bichromate, lb.	0	0	7	†0	1	6
chlorate, lb.....	0	1	0	0	1	6
permanganate, cwt.....	5	0	0	†0	4	9
prussiate, lb.....	0	1	4	0	3	6
Quicksilver, second hands, bottle	11	2	6	16	12	6
Sodium bicarbonate, ton..	5	13	0	7	4	0
nitrate, ref., ton.....	11	0	0	16	5	0
Sulphur flowers, ton.....	10	10	0	12	0	0
Tartaric acid, lb.....	0	1	5½	0	2	6

	High— £	s.	d.	Low— £	s.	d.
Acetic acid, glacial, ton..	140	0	0	45	0	0
Alum, lump, ton.....	10	10	0	7	2	6
Ammon. sulph, 25%, ton.	17	2	6	11	5	0
Arsenic, Cornish, ton.....	33	0	0	16	0	0
Benzole, 90%, gal.....	0	1	5	0	0	10½
Bleaching powder, ton....	20	0	0	8	10	0
Boracic acid, crystals, cwt	2	3	0	1	10	0
Borax, crystals, cwt.....	1	5	0	0	18	6
Carbolic acid—						
crude, 60%, gal.....	0	3	7	0	2	10
crystals, 40%, lb.....	0	1	7	0	1	2
Citric acid, lb.....	0	3	6	0	2	5½
Copper sulphate, Liverpool, ton	45	10	0	21	12	6
Cream of tartar, 98%, cwt.	10	0	0	7	0	0
Iron sulphate, ton.....	4	10	0	2	7	6
Oxalic acid, lb.....	0	1	4	0	0	8
Potashes, Montreal firsts, cwt.	7	15	0	3	0	0
Potassium bichromate....	0	1	6	0	0	6
chlorate, lb.....	0	1	8	0	1	0
permanganate, cwt.....	‡0	4	9	0	90	0
prussiate	0	3	6	0	1	1
Quicksilver, second hands, bottle	18	10	0	11	0	0
Sodium bicarbonate, ton..	7	0	0	5	13	0
nitrate, ref., ton.....	16	5	0	11	0	0
Sulphur flowers, ton.....	13	0	0	10	10	0
Tartaric acid, lb.....	0	2	6½	0	1	5½

*Nominal.
†Dealers' price; makers' nominal.
‡Pound.

Acetate of lime having increased enormously in price, acetic acid has shown a considerable advance and in the later months was especially scarce. Alum reflects the higher cost of production. Diminishing supply of sulphuric acid accounted largely for the rise in ammonium sulphate, which was particularly marked since August. Arsenic responded to the ruling conditions indicated above, with a little freer supplies towards the end of the year. The full outturn of benzole was taken up, the government having its finger on the price; likewise for carbolic acid. Sustained demand for borax and boracic acid, in conjunction with the greater expense of bringing here and refining, caused several uplifts. Citric acid steadily rose to July, when the demand and the price fell away. While tartartic acid was a rising market, cream of tartar closed below the best (208s. in June). Shortage of vitriol and a heavy demand in the later months were responsible for the extreme rates reached by copper iron sulphates. Oxalic acid was scarce throughout. The shortage of potassium bases and the effect on the salts required no elaboration. The run on potashes (Canadian and New Yorks) made for scarcity and extreme prices. Carbonate of potash and caustic potash have been almost unobtainable, the former finishing at £180 per ton and the latter at £320. Government requirements accounted for higher quicksilver values. Bleaching powder, caustic soda and sodium bicarbonate have been short and closed the year at more or less nominal prices. American bleach and caustic soda have been taken to a moderate extent and nitrate of soda has moved in sympathy with the difficulty of shipping from Chile. Imports of potassium chlorate has been smaller and, with the demand for the war, prices have advanced appreciably, but closed below the best. Sulphur was scarce at times. Lead compounds have been consistently strong; English red opened at £23 15c. per ton and closed at £38 5s., while white was £25 and £37 15s. respectively.

DUTCH CHEMICAL MARKET.

Owing to the war between the Entente Powers and the Central Allies the neutral countries, such as Holland, Denmark, Norway and Sweden, have made big profits by doing a large business in every trade, and not the least in the chemical trade.

In spite of the will of the Allies, on one side, and the Germans, on the other side, not to do business with the enemy, trade has gone on between the different opponents through neutral hands, and although the Dutch Government has prohibited the export of many chemicals, the goods changed nationality by the way of fraud. Many incidents caused annoyance to this government, and in order to get the necessary chemicals Holland had to take rigorous measures.

A company has been erected under the name of "The Netherlands Oversea Trust Maatschappy," and this trust, supported by the government, had the mission to give the full guaranties that goods coming from one of the nations at war will only be used for inland consumption. And to prevent export of these goods every buyer of foreign merchandise had to remit to the Netherlands Oversea Trust Company a bank credit or bank guaranty of the value of the articles, which guaranty will be returned after it is proved that the goods are consumed in the country.

If, however, the buyer, notwithstanding the guaranty he had deposed, exported what he bought, he was liable to pay five or six times the value of the invoice as punishment, and could not import any other articles. The Netherlands Oversea Trust Company prevented thereby a great deal of contraband. Nevertheless, there were large firms in Rotterdam which were caught frauding and consequently had to pay a sum of about 1,200,000 florins and 1,300,000 florins, equal to $80,000 to $120,000.

After this example nobody dared to work against the Netherlands Oversea Trust Company, and all foreign business was done on N. O. T. conditions.

Even business from a neutral country to Holland had to be based on these conditions, as England wants to prevent Germany getting a kilo of material. Therefore American products have to be consigned also to this institution, and most of the great shipping companies of Holland, for instance, the Holland-America Line, and others, will not take any American goods for Holland on board unless they possess the certificate of the Netherlands Oversea Trust Maatschappy, showing them that the merchandise which were to be shipped are for Dutch consumption.

Generally speaking, the chemical market changed very often. As Holland does not possess any large chemical factory the great majority of chemicals have to be imported and the country depends entirely on its neighbors, Great Britain and Germany, in peace-times on Belgium.

The following lines tell how prices altered during the course of the year:—

Bleaching Powder.

At the beginning of the year this article was imported in large quantities from Germany, and during the months of January, February and March prices were for 90-90 deg. 4.50 florins, for 100 deg., 5 florins; for 100-109 deg., 5.50 florins, and for 110-115 deg., 6 florins, c. i. f. Rotterdam in casks of about 300-330 kilos. In the abovementioned months Germany did not require a Netherlands Oversea Trust's certificate, and Dutch buyers were eagerly buying these German goods. But in April and May the quantities of German bleaching powder got smaller, and consequently prices went up. In June the German Government prohibited the export, so that no more German powder was to be had. The stocks in Holland were nearly exhausted and buyers had to pay the high English prices, viz., 15 florins to 20 florins, c. i. f. Rotterdam in 6 cwt. sacks, N. O. T. conditions. As the consumption of this article was so enormous and the import from England so small prices went up constantly. In October and November bleaching powder was sold at 20 florins to 40 florins, c. i. f. Rotterdam. Small quantities came over from the United Kingdom, and for the last shipment in December 50 florins c. i. f. Rotterdam has been paid. It seems to be that prices will still go higher.

Potash Carbonate.

Holland is only producing the lower degrees, viz., 60-65 per cent., 70-75 per cent., 75-80 per cent., and 80-85 per cent. Dutch soap makers always use the high German potashes, and thus the Dutch carbonate of potash went to England. During January-February it was sold at 25 florins for 60-65 per cent., at 30 florins for 70-75 per cent., at 38 florins for 75-80 per cent., and at 42 florins for 80-85 per cent., c. i. f. English ports in casks of 500-600 kilos. But owing to the fact that Germany prohibited the export of the German potashes to Holland the Dutch Government had to do the same, in order that the soap industry would not suffer too much, and as the stocks of German carbonate of potash were exhausted the inland carbonate was sold at 22 florins for 60-65 per cent., at 28 florins for 70-75 per cent. The 75-80 per cent. and 80-85 per cent. was sold out and was not reproduced, owing to the bad raw materials. During three months the prices were steady, but several large firms in Rotterdam and Amsterdam got a special permit to import German potashes and immediately prices of Dutch carbonate went down to 15 florins for 60-65 per cent., and at 20 florins to 22 florins for 70-75 per cent., and these prices were maintained until the end of the year. Meanwhile the 60-65 per cent. quality was sold out, too, and for the moment 70-75 per cent. is only to be had at 23 florins to 25 florins, f. o. b. Rotterdam. Germany does not export a kilo of this article, but as we will see afterwards, the Dutch soap makers get plenty of liquid caustic potash.

Caustic Potash.

This article is not manufactured in Holland and comes exclusively from Germany. But already in the beginning of the year the import was very difficult, and in March Germany prohibited the export except for a few licenses. In these circumstances prices were very high and a few small lots were obtainable at 35 florins for 80-85 per cent., and 40 florins for 90-92 per cent. But since August no solid caustic potash came to Holland, and finally Germany gave permission to some German factories to export liquid caustic potash to Holland. However, only large soap makers here in the country are able to make contracts with the Germans, and the little ones have to buy the Dutch carbonate of potash. In any case it is quite impossible to get large quantities of caustic potash, and the small stocks still here are sold at 50 florins to 70 florins for 90-92 per cent.

Chlorates, Prussiates and Bichromates of Potash and Soda.

These articles are not to be had in big lots, and the few tons in the country were sold in January at 45 florins for bichromate of potash, and 98 florins for prussiate of potash. During the whole year quotations were going higher, and at the end of 1915 stocks are nearly exhausted. These articles are not very much wanted in Holland.

Potash Permanganate.

In January and February large quantities went to England and were sold at 80 florins to 140 florins, c. i. f. English ports in drums of 50 kilos each. However, when the prohibition of export came prices went immediately down and one could buy at 50 florins to 60 florins. But this fall did not last long, and a month later 130 florins was reached. In August 85 florins was paid, and in November 120 florins, f. o. b. Rotterdam, and this last price was maintained. There was no article which was so unsteady as permanganate of potash.

Soda Hyposulphite.

This article was not wanted very badly and prices were in the three beginning months 9 florins, c. i. f. Rotterdam. But later on posulpnite got dearer and reached the limit of 15 florins, c. i. f. Rotterdam. At this price a few tons were sold in December.

Soda Ash.

Large stocks were held in Holland in January and February and March, and the import from England was rather important. But in January and August Great Britain prohibited the export of this article to Holland, except with a special license. Stocks diminished very rapidly. In the first half of the year 5 florins to 10 florins was paid, but little by little it went up and in October soda ash imported directly from England was sold at 15 florins c. i. f. Rotterdam, and spot delivery at 30 florins. During November and December American soda ash could be bought at 20 florins for delivery within a month, c. i. f. Rotterdam, but the price for immediate delivery was 35 florins. Soda ash is getting very scarce and is badly wanted. Numerous soap manufacturers had to stop their business.

Soda Bicarbonate.

For this article we have seen a great advance in prices. In January, February and March sellers asked 11 florins, c. i. f. Rotterdam, prompt delivery. In April, May and July prices went up to 15 florins, and in the last six months people could buy at 20 florins and 25 florins.

Soda Crystals.

Owing to the high prices of soda ash prices for soda crystals advanced. The few factories in Holland could not produce enough for inland consumption, and Holland had to import big lots from England. From 2.50 florins at the beginning of the year to 8 florins in November and December was the rise, and we will still see higher quotations.

Caustic Soda.

Fair quantities were imported in January, February and March at 12 florins for 70-72 per cent., and 14 florins for 76-77 per cent. from England. However, the import got smaller and smaller, and during June, July and August nothing was to be had. Still today English caustic soda is not available, and English business men are offering American caustic soda at 35 florins to 40 florins for 70-72 per cent., c. i. f. Rotterdam, in drums, for January delivery from New York. The article is very scarce here. The retail sellers ask even 100 florins for spot delivery.

Muriate and Sulphate of Potash.

Before the Dutch Government prohibited the export of these two articles hundreds of tons went to England at 18 florins to 20 florins for muriate, and 20 florins to 22 florins for sulphate, c. i. f. English ports. But since March export has been quite impossible, and the goods were sold here at 13 florins to 15 florins for muriate, and 15 florins to 17 florins for sulphate. And these prices were maintained during the rest of the year.

Alum (Potash) and Alumina Sulphate.

There was very little demand for these goods, and their destination was exclusively the Dutch colonies.

Borax and Acid Boracic.

Before the Netherlands Oversea Trust Company existed large quantities of these materials were imported from England in order to be re-exported to Germany and invaded Belgium. But as soon as borax and its acid was to buy only at N. O. T. conditions this export stopped. For borax crystals and granulated 22 florins, and for powder 23 florins, c. i. f. Rotterdam, was paid in January, N. O. T. conditions. Prices, however, went higher and were in October and November 34 florins for crystals, and 35 florins for powder.

Epsom Salt.

A light inquiry prevailed. Germany asked during the first six months 2.50 florins and later on 3.50 florins, c. i. f. Rotterdam, but only little was bought.

Copper Sulphate.

As this article is contraband no import can take place. A few lots were sold in Rotterdam early in the year at 30 florins, c. i. f. Afterwards no other export license was granted by the English Government. The small stocks in Holland were soon exhausted and in July 55 florins was offered. Today nothing is to be had.

Zinc Oxide.

Rather big lots have been exported from Holland to all parts of the world. For impure zinc oxide 30 florins was quoted in February, and 33 florins in April, and 38 florins in November and December. Pure zinc oxide was offered at 39 florins in July and August, and 42 florins in the last months.

Zinc Sulphate.

Small quantities were offered at 23 florins in June, but meanwhile prices went higher and reached 30 florins, as the raw material is very scarce.

Naphthaline.

This article is getting scarce, but nevertheless small amounts have been exported. In June and July 15 florins was asked for flakes, and 16 florins for balls. Powder and candles were not to be had. In November and December naphthaline was sold at 20 florins for flakes and 22 florins for balls.

White Lead (Carbonate of Lead).

In January and February it was quoted at 44 florins f. o. b. Rotterdam or Amsterdam, but went always higher. March saw prices of 45 florins, and July-August 49 florins, and November-December 52 florins. Offers were only made for neutral countries.

Lithopone.

The same remarks have to be made as for zinc oxide. Large quantities were exported and the following prices were paid:—In January, February and March, 20 florins for 30 per cent., and for the same quality in September, October and November 21 florins f. o. b. Amsterdam or Rotterdam.

Farina.

Being one of the chief productions of Holland, export was prohibited for some time, but as the quantities became enormous the government gave numerous export licenses. In January 17 florins f. o. b. Rotterdam was paid for finest quality, packed in single bags. This was the price when the goods were not allowed to be exported. But in July, August and September farina, finest quality, was bought at 31 florins to 33 florins f. o. b. Rotterdam. In November and December prices went higher at 34 florins to 36 florins.

Dextrine.

The same which is said about farina is applicable to the dextrine. When export was prohibited offers were made at 30 florins to 34 florins; this in April and May, f. o. b. Rotterdam. August saw a little rise, 31 florins to 35 florins, and in September prices went down to 28 florins to 31 florins, and in December 26 florins to 29 florins was quoted.

All prices are per 100 kilos, packages included.

Fertilizer Markets

NEW YORK.

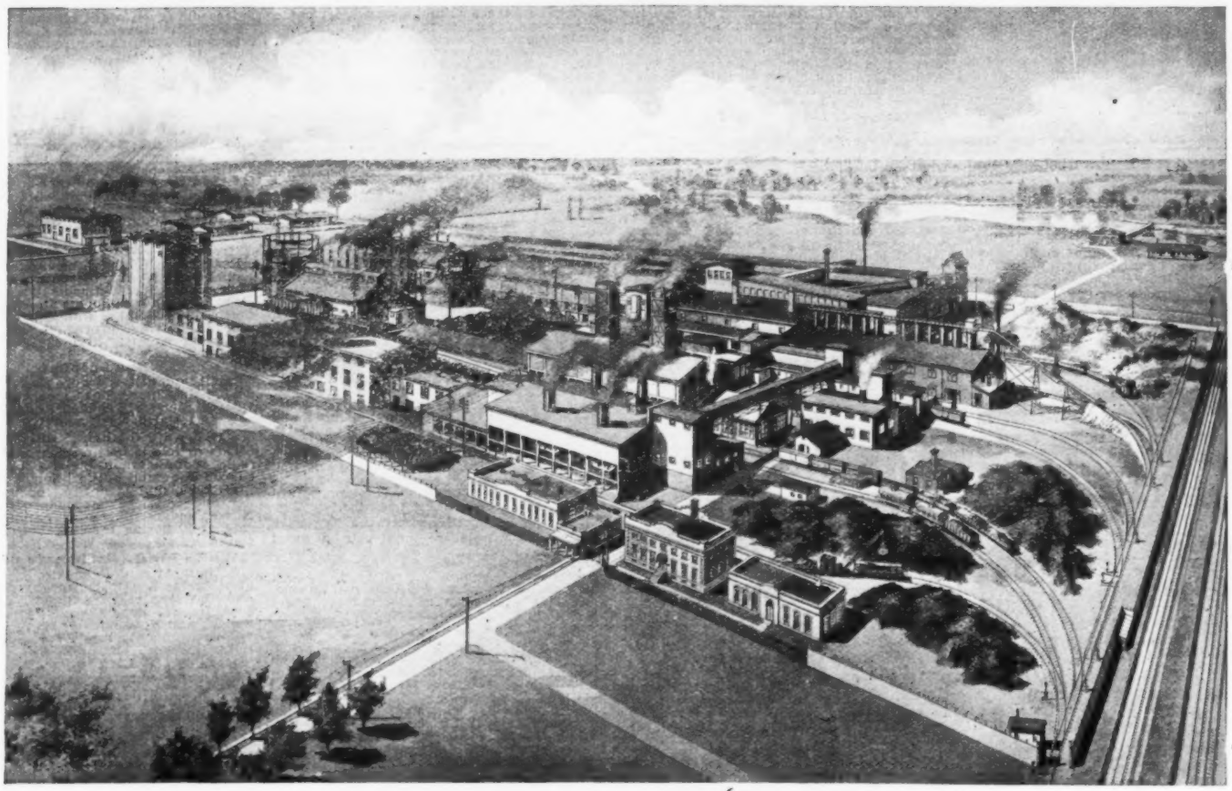
A review of the fertilizer industry for the past year reveals unusual conditions both in regard to fertilizer and the important raw materials. To begin with the year opened most unfavorably as the South, where the majority of fertilizer is consumed was in a state of depression because of inability to market its staple crop, cotton, at fair prices. Heavy exports of cotton were rendered impossible by existing conditions and market prices were in a slump. Measures were taken to cut down the acreage for the 1915 crop and farmers were induced to limit production on the ground that such action would be most beneficial to the cotton industry. The acreage was reduced and naturally caused a reduction in the use of fertilizers. The reduction in the latter was out of all proportion with the actual area planted, for in some quarters less than 50 per cent. of the normal amount of fertilizer was used and this percentage was almost maintained throughout the Southern States. The poor returns from the previous crop placed planters in a poor financial position, and fertilizer manufacturers found it difficult to make collections on the notes of consumers. The trade in fertilizers therefore was poor over the first half of the year, but a big improvement set in during the second six months. This was largely brought about by recovery in market prices for cotton and with greatly increased returns the agricultural sections were in a position to meet obligations and the fall season was entirely satisfactory with a good outlook facing the trade as the year came to an end.

In the materials market perhaps the most important developments were found in the case of potash salts. Our dependence upon German sources of supply had been driven home on previous occasion but was intensified when shipments from that country began to assume small proportions. From March until the end of the year an embargo on shipments of potash salts from Germany was effective and this is likely to continue until the European war is over. After the placing of the embargo shipments became smaller and smaller and after available supplies in other consuming markets had been exhausted imports became a negligible quantity. Therefore, the fertilizer trade of this country is confronted with the necessity of doing without potash. What supplies of the higher grade salts were offered commanded such high prices that they were out of reach for fertilizer purposes and were taken by the chemical trade.

Nitrate of soda is another important material which was in an unusual position during the year. Imports were the largest in the history of the trade, yet were none too large to satisfy demands. This resulted from the heavy call for this material in the making of powder and explosives. High ocean freights, scarcity of tonnage and the unusual demand contributed to send prices to high levels. The advancing tendency of prices was a feature of the year in the case of practically all fertilizer materials.

Production of sulphate of ammonia in this country showed a gain over 1914, but was pretty well sold ahead and values moved in sympathy wth foreign markets. Imports of sulphate were comparatively small and were interfered with by restrictions on the part of the British Government and by com-

Nitrogen from the Air



FACTORIES AT NIAGARA FALLS CANADA—PRODUCING 64,000 TONS OF CYANAMID PER ANNUM

Original plant built, 1909 . . .	Capacity	12,000 tons per annum
Plant increased in 1912	"	32,000 " " "
Plant increased in 1913	"	64,000 " " "

The Cyanamid made in 1910	averaged	17.40% ammonia
" " " " 1915	"	23.18% "

Cyanamid is being used as a source of organic nitrogen in approximately one-fourth the ammoniated fertilizer tonnage of the United States. Its increasing use is based upon the following advantages:—

Low selling price—made possible by large, fixed rate of production.

Admittedly the best dryer for all kinds of damp fertilizer mixtures.

Neutralizes free acids in mixtures, and prevents bag-rotting.

Prevents losses of nitrate nitrogen in fertilizer mixtures.

Soil action begins immediately after application, and continues uniformly, for nearly three months.

Produces results equal or superior to results from the more expensive organic ammoniates.

The utilization of Cyanamid for the production of ammonia and ammonium compounds is rapidly increasing.

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plications in the shipping situation. A disastrous year was reported by the menhaden fishing trade and production of fish scrap was about the poorest in the history of the trade. Acid phosphate was benefited by consumption outside the fertilizer trade and unsold stocks were smaller than usual, with prices at record levels.

FISH SCRAP.

The poorest season in the history of the trade is the way the 1915 season is described by the menhaden companies. The catch of fish was disappointing throughout the season. Owing to legal supervision the season did not open until June 1 and results were so poor in the North that many boats cut out early in the year. The same situation also arose in southern waters and the number of boats was greatly reduced late in the year. With production on a small scale, prices were high and demand for scrap was light accordingly, as only manufacturers who had fish brands to maintain were willing to take on stocks at prevailing prices. Sales were made at $2.65 and 35 for acid scrap at the beginning of the season, but values started to go up as soon as a line was given on the probable catch, and at the close of the season $3.75 was the quotation.

Sulphate of Ammonia.

Production of sulphate of ammonia in this country in 1915 showed a gain over that of 1914, the estimated output being 212,000 tons and 183,000 tons, respectively. Production in the United Kingdom is estimated at 425,000 tons, as against 426,412 tons in 1914. The figures represent short tons for the United States and long tons for the United Kingdom. About 80 per cent. of the domestic output is said to have come from by-product coke ovens and because of the strong demand the future production is expected to show material gains. Imports of sulphate were smaller in 1915 than in 1914 and prices were affected in sellers' favor by the fact that German sulphate was unavailable, thus eliminating competition, which was a market feature while normal conditions prevailed in Europe. The export business in sulphate of the United Kingdom is shown by the following figures:—

	Tons	
Shipped to—	1915.	1914.
Germany	.....	3,417
France	11,430	2,486
Spain and Canaries	68,370	64,149
Italy	7,071	5,060
Dutch East Indies	93,967	54,869
Japan	10,537	87,776
United States	16,377	43,601
British West India Islands	12,755	11,990
Other countries	73,801	39,993
Totals	294,308	313,341

Price changes for the year show that values were on the upward trend. Early in January there were offers on a basis of $2.55 per hundred pounds, but this figure did not hold good for long, and rise after rise was reported as the year advanced until the last half of December, when a level of $4 per hundred pounds was reached, and this was the price at which the year closed. Thus it will be seen that the lowest price was effective at the beginning of the year and the highest price at the close of the year. Higher levels were brought about by the smaller offerings of foreign material, the ready absorption of domestic supplies and the high prices for competing materials, especially nitrate of soda.

NITRATE OF SODA.

With stocks of nitrate in Chile abnormally large at the beginning of the year and the largest consuming country in Europe eliminated as a buyer, the industry was in a state of depression and values were at low marks. In domestic markets nitrate was quoted at $1.85 per hundred pounds. The influence of higher ocean freights soon was felt and values started on an upward march, which was continued throughout the year. At the close of the year $3.25 per hundred pounds was the market quotation. The closing of the Panama Canal was a disturbing factor in the latter part of the year as it increased freight rates and thus put up the price as delivered at domestic points. Outside of the sharp rise in price the feature of the year was the record shipments to this country. Imports were far in excess of those for preceding years, yet arrivals were readily absorbed and there was hardly a time when accummulations were reported or when values give way under offerings of surplus stocks. This illustrates the abnormal consumption in this country during the twelve months. The big buying, however, did not come from the fertilizer trade. It was for making munitions of war that the nitrate was wanted and the big outlet thus opened up made it possible to import in such quantities at the high prices which prevailed.

At the beginning of the year stocks of nitrate on the West Coast were very large and prices were very low, with the result that many of the oficinas were not operating. Some idea of the decrease in production may be gained from the fact that the output for the first six months of the year was 567,290 tons, as against 1,461,320 tons for the corresponding period in 1914. In spite of the lessened production, stocks in Chile at the close of the six months were 847,000 tons. In the second half of the year, demand increased to such an extent that values went to higher levels and more oficinas started to operate. As a result the output showed a marked gain and in December production was given as 5,526,910 quintals, as against 2,428,759 quintals for December, 1914. Stocks at the close of the year were 17,000,000 quintals, as against 23,500,000 quintals at the close of 1914. Prices for nitrate at primary were 5s. 10d. per quintal in January, and reached the high mark of the year, 9s. 9d. per quintal, around the middle of October. From that time to the end of the year prices eased off and closing prices were 7s. per quintal. Shipments of nitrate in tons for the past three years were as follows:—

Shipped to—	1915.	1914.	1913.
Europe	1,622,100	1,210,700	1,983,600
United States	811,700	518,850	610,200
Totals	2,433,800	1,729,550	2,593,800

PHOSPHATE ROCK.

The production of phosphate rock in the United States in 1914, as shown by the quantity marketed by states, was 2,734,043 long tons, valued at $9,608,041. The production of the preceding year amounted to 3,111,221 long tons, or 12 per cent. in quantity, and of $2,188,190, or 19 per cent. in value.

The output came, as usual, principally, from Florida, Tennessee and South Carolina, in the order named. In the Western field the producing states were Idaho and Wyoming. Florida continues to be the leading producer, followed distantly by South Carolina. The marketed output of the Western states is still small, amounting to about one-fifth of 1 per cent. of the total production of the country.

The production of the Western states in 1914 amounted to 5,030 long tons, valued at $15,488, as compared with a production of 5,053 tons, valued at $18,167, in 1913.

The stocks on hand in Florida at the end of 1914 declined by 5 per cent., as compared with 1913; in Tennessee the decrease amounted to 26 per cent., and in South Carolina it was 6 per cent.

Official figures for the 1915 output of phosphate rock are not yet available, but it is expected that they will show a decline, as compared with those for 1914. One of the chief reasons for this is that export trade was normal over the first half of 1914, while below normal over all of 1915. Under normal conditions Germany is a large consumer of Florida hard rock, but when the war broke out such shipments stopped, and this was followed by curtailment of shipment, many mines closing entirely. This situation was prolonged over 1915, and seems likely to continue to a greater or less degree until export trade has returned to a normal basis. At the beginning of the year prices were on the following basis:—Florida land pebble, $2.75@3.25 f. o. b. Port Tampa; South Carolina, kiln dried, $3.50@3.75 f. o. b. Ashley River; Florida high-grade rock, 77 per cent., $5@6.25 f. o. b. Florida ports; Tennessee rock, 70@80 per cent., $5@5.50 f. o. b. Mount Pleasant; 75 per cent. guaranteed, $4@5, and 68@72 per cent., $4.25@4.50.

In the latter part of the year Florida land pebble was quoted at $1.75@3.25, but the other grades were holding fairly steady in price.

POTASH SALTS.

One of the most memorable years in the history of the trade is reported in the case of potash salts. This represented a period when prices went to unheard of levels and stocks were reduced to a minimum. As importations were very irregular around the latter part of 1914 prices on the part of first hands were largely nominal at the beginning of 1915. Second hands were quoting muriate of potash at $70, and there was practically no trading in the other selections. At the close of February the question of supplies became still more complicated by the announcement that Germany had placed an embargo on shipments of potash. From that time up to the end of the year only straggling lots reached domestic markets. As the supplies on hand became smaller prices advanced, and speculative buying helped to quicken the advance. In the fall it was reported that $600 had been paid for a single ton of muriate. The latter material received the bulk of attention, as other grades of potash were quiet at all times. Muriate is the base of many chemical compounds, and, therefore, was eagerly sought by chemical manufacturers. While a sale was reported at $600 per ton, this does not represent the market, as values for moderate quantities did not get that high. At the close of the year $460@475 per ton was quoted, and this was the high mark of the year. The embargo on shipments from Germany was said to have been laid because potash salts are used in making munitions of war, and another reason for the stopping of shipments was found in the desire of Germany to exchange potash salts for cotton.

The failure to obtain supplies of potash from Germany stimulated the search for domestic supplies. Some progress in that direction is reported for the year. The kelp groves off the Pacific Coast were exploited, and some potash was produced from that source. Sulphate of potash was produced from alunite in Utah. Some of the cement companies in the West are reported to have recovered potash in the production of cement, and plans are being made to do the same thing in the East. It has been established, beyond doubt, that there are large deposits of potash in this country. Alunite, feldspar and granite formations in different parts of the country contain high enough percentage of potash to make them valuable if a way could be found to reduce the potash to a soluble form, so that it would be valuable as a fertilizer.

BALTIMORE.

The fertilizer trade of Baltimore during the year 1915 was productive of some encouraging features, and of others which imposed more or less strain and are not to be viewed with satisfaction. The manufacturers began the year with the effect of the serious setback of 1914, due to the war and its unsettling influence still strongly upon them. They were confronted by grave conditions in the South, which section had suffered severely in consequence of finding some of its most remunerative markets for cotton closed, which resulted in a big shrinkage of values, and in turn reacted upon the demand for fertilizers to an extent estimated at 45 or even 50 per cent. The future presented a decidedly dubious aspect, and the industry was placed under a severe strain, the resources of the individual firms and corporations being subjected to the heaviest financial tension. This state of affairs continued for a time, but eventually, as the returns for cotton improved, and the South began to find itself once more in a position to meet obligations, the situation took on a decidedly more promising aspect, which assumed increasingly distinct form, and by the summer brought the manufacturers of mixtures to a condition almost of optimism. The feeling began to gain ground that the recovery would be far more rapid than there had been any reason to hope for, not so long before on account of the dependence of Europe, and especially of the warring nations upon the surplus of the United States in the way of foodstuffs, supplemented as the movement was with a great demand for other supplies. This expectation was in large part realized. The exports took on an unprecedented volume, stimulating various manufactures to an abnormal degree, and the high prices realized on wheat and other foodstuffs caused an enlargement of the acreage planted in various crops, and thus in great measure made up for the deficiency in the requirements of the South. The manufacturers of fertilizer mixtures, therefore, took heart, and their hopefulness appeared to be quite justified, for the demand in the way of mixtures for the spring and summer crops assumed attractive proportions, so that even the indifferent inquiry from the South could be overlooked. It was confidently expected that the fall trade would practically restore the status prior to the war, and preparations were made by the manufacturers of mixtures accordingly. This expectation, however, they did not entirely realize. For some reason the interest of the buyers after a time seemed to lag, and while the purchasing continued for a considerably longer period than might have been supposed, it was scarcely at any time of that spirited character which might have served to give mixtures a boom, and the close of the season left the manufacturers without that convincing sense of prosperity which they had perhaps nursed as a probability, or even a certainty of the future. It is not to be understood, however, that the year has been a bad one, compared with 1914, it must be regarded as decidedly encouraging, and this has evidently been the impression made upon the members of the trade, since a number of them have been moved to authorize large expenditures for improvement, which may be regarded as the first for some years, in fact, since the time of most active building and enlargement, which resulted in the nerve-trying competition of the previous four or five years. All in all, the fertilizer manufacturers here have reason to view the year 1915 with a measure of complacency, if not with satisfaction, since it has made possible a very decided progress toward really prosperous conditions. If all the anticipations have not been realized, it is also to be said that the trade has done better than the latter part of 1914 or the early part of 1915.

One of the developments to upset calculations and test the resourcefulness of the manufacturers was the big advance in the prices of most of the crude stocks required by the makers of mixtures. This rise was due in the first place to the cutting off of some of the supplies by the war, and in the second to exceptional demands made upon the agencies engaged in the production of ammonia. At the closing of the avenues of supply for this one class necessitated a readjustment of formulas to permit the putting out of goods in adequate quantities, so the increase in the cost of other stocks still to be had, but only at materially enhanced values, called for a revision of prices and for much missionary work in order that the consumers and the retailers might become familiar with the idea that they would have to pay more for their fertilizers. That this readjustment in both directions has been accomplished with practically no disturbance to the trade is vastly to the credit of the Baltimore manufacturers, who have thus shown their ability to rise equal to almost any emergency.

There remains to be settled only the question as to the value of the readjustment necessitated by the cutting off of certain supplies. The results of the last crop season would seem to show that bountiful harvests can be obtained without the use of certain materials at least in the quantities formerly employed; and this has naturally tended to give the manufacturers here a greater feling of independence. But whether the experience of last summer will be repeated is quite another matter, and raises a question, the answer to which will not be supplied for some time. The South evidently has found that liberal expenditure for fertilizers of standard quality is a profitable investment, its curtailment of the use of fertilizers in the former proportion having resulted in a greatly reduced yield of cotton. This, however, is not without some advantage, for it enabled the Southern planters to harvest a very cheap crop, upon which they stand to make more money than they had perhaps made before on some of the yields which netted a higher average price.

Generally speaking, it may be said that the large crops of last year have by no means given farmers an idea that fertilizers can be dispensed with. There is, in fact, every indication that the big returns secured on wheat and other staples will stimulate the demand for fertilizer mixtures this year, and the manufacturers, therefore, have every reason to view the future with optimism.

The outstanding factor of the fertilizer trade here, in so far as the importation of crude materials is concerned, was, of course, the complete subsidence in the second half of the year of receipts of potash in its various forms, which necessitated an extensive readjustment on the part of the manufacturers of mixtures in their processes. Although the war began August 1, 1914, the effect upon shipments from Germany being almost immediate, potash continued to come in by way of neutral countries, of course, until last March, when the last arrivals in any quantity were received here. Consequently, the flow of this material was not really suspended until seven months after the outbreak of the war. Since last February, however, there has been practically a complete suspension, no kainit at all having come in, with a considerable shipment of manure salt, but with only a few insignificant lots of muriate and sulphate. To the receipts here must also be added, though this does not show in the custom house reports, of a lot of muriate shipped by way of New York. This shipment was originally booked to come direct, but subsequently it was decided to unload the material in New York and send it here by rail. From time to time reports have been in circulation of additional supplies arriving here, but such reports are not borne out by the custom house figures.

Another striking feature of the statistics as to potash is the heavy increase in value disclosed. In the beginning of 1914, for instance, manure salt was estimated in the ship manifests at just a little less than $10 a ton. A year later the valuation had gone up to more than $12. Similarly, the invoice price of muriate, which was about $30 in January, 1914, rose to over $37, and last November the single ton to arrive here was down at $216. At this time, however, it will be remembered, muriate as being quoted in the domestic market at $450 to $475 per ton, with sulphate of potash at $180 a ton. The fifty tons of sulphate of potash received here last September were valued at $92,000, or at the rate of $180 a ton, while the six tons arriving in May were listed at $610, or a little over $100 per ton. Similar increases have taken place in other grades of potash, the one exception perhaps being manure salt, the 1,088 tons brought in last March being valued at $8,799, or only a little more than $8 per ton, against $12 or $13 in January. This, however, was due probably less to a lowering of values than to a reduction in quality, the March imports doubtless representing some of the remnants with a very low percentage of potash.

The extent to which the war interfered with the imports of fertilizer materials is shown in totals, the aggregate quantity of all materials having decreased from 760,292,543 pounds in 1914 to 646,699,840 pounds last year. The decline in value at the same time was from $5,520,899 in 1914 to $4,027,892, being therefore larger proportionately than the reduction in quantity, which indicates that to some extent materials lower in price had to be substituted for those of greater value which were not to be obtained. In addition, account must be taken of the advance in the price of potash and some of the other substances, which were, as a rule, more expensive than they had been the year before.

One striking feature of the exhibit is to be found in the imports of nitrate of soda, which increased from 122,246,040 pounds in 1914 to 172,424,000 pounds, or about one-third, while the value of the imports rose from $1,414,288 to $2,016,177, or a little less than one-third. Evidently, therefore, no increase in value took place, unless it be assumed that the manifest value took no account of the higher freight rates, and merely gave the cost of the nitrate at the mines. The gain in imports, however, furnishes striking evidence of the augmented requirements, which were not occasioned by the needs of the fertilizer factories so much as by special calls in other directions. Great quantities of nitrate went into the manufacture of materials for war munitions, and the showing would have been even more impressive but for the closing of the Panama Canal, which went far to hold up shipments during the latter months of the year, no nitrate at all having arrived here in October and November, against some 14,000 tons in the same month of 1914. The effect of the demand upon crude stocks made by the munition factories is also seen in the receipts of pyrites, which increased from 160,631 tons in 1914 to 186,697 tons last year, with a gain in declared value from $979,661 to $1,046,724.

Still another illustration of the influence of the war, this time in the way of a restriction of imports, is disclosed with regard to sulphate of ammonia, the imports of which material decreased from 14,990,623 pounds in 1914 to 13,388,880 pounds last year, with the decline in declared value almost 50 per cent., while the price on this side of the Atlantic has gradually increased until it is now higher than at any time for years past. During three months of the year no sulphate of ammonia at all was received at this port, and since then the quantities to come in have been exceedingly small. This is attributed in the first place to the scarcity of ocean tonnage and the curtailment of shipments generally, but perhaps even more to the action of the British Government in keeping fertilizer and other materials at home in order that the extra requirements of the war department and the necessities of the agricultural interests in the United Kingdom may be met first. It is also to be noted that in consequence of the war the imports of bone were restricted to a very appreciable extent, Europe having no bone to spare, and the receipts from South America being limited for one reason or another, either on account of a scarcity of vessels or because of the greater requirements at home. In this connection it is to be said that during the

last few months several full cargoes have been sent to this port, which suggests that the American fertilizer trade must be offering attractive figures. In fact, it is a matter of general knowledge that bone has not ruled so high for a long time as at present.

In this connection it is also to be stated that the receipts here of guano, which amounted to 262 tons, worth $5,878, in 1914, ceased entirely last year, perhaps because the sources of supply were drawn upon to meet the necessities of some of the other countries.

Altogether the showing made by the exports and imports reflect strongly the unsettled effect of the war, either in the way of greater needs in the countries producing certain crude stocks, or in consequence of restrictions in shipments or impairment of production.

The imports in detail were as follows:—

KAINIT.

	1915		1914	
	Tons.	Value.	Tons.	Value.
Jan.	176	$1,012	3,104	$13,332
Feb.	328	1,345	2,901	10,571
Mar.	.....	.....	3,631	14,572
Apr.	.....	.....	4,573	17,817
May	.....	.....	6,632	28,083
June	.....	.....	3,706	16,724
July	.....	.....	8,001	31,393
Aug.	.....	.....	796	2,830
Sept.	.....	.....	899	2,800
Oct.	.....	.....	.....	.....
Nov.	.....	.....	.....	.....
Dec.	.....	.....	307	1,167
Totals.	504	$2,357	34,550	$139,589

MANURE SALT.

	1915		1914	
	Tons.	Value.	Tons.	Value.
Jan.	2,587	$31,581	2,387	$22,690
Feb.	325	2,450	4,010	39,893
Mar.	1,088	8,799	867	6,946
Apr.	.....	.....	867	6,946
May	.....	.....	7,479	66,059
June.	.....	.....	6,091	61,141
July	.....	.....	6,198	53,281
Aug.	.....	.....	868	6,959
Sept.	.....	.....	927	7,464
Oct.	.....	.....	.....	.....
Nov.	.....	.....	349	3,156
Dec.	.....	.....	761	11,210
Totals.	4,000	$42,830	34,783	$320,390

MURIATE OF POTASH.

	1915		1914	
	Tons.	Value.	Tons.	Value.
Jan.	4,567	$172,091	6,781	$205,440
Feb.	4,203	158,187	2,343	73,461
Mar.	350	10,683	3,168	97,959
Apr.	.....	.....	7,206	227,606
May	.....	.....	4,596	147,598
June.	.....	.....	7,274	233,674
July	.....	.....	6,127	196,694
Aug.	.....	.....	560	17,578
Sept.	.....	.....	604	18,913
Oct.	.....	.....	.....	.....
Nov.	1	216	960	46,999
Dec.	.....	.....	1,170	44,439
Totals.	9,121	$341,147	40,789	$1,319,221

SULPHATE OF POTASH.

	1915		1914	
	Tons.	Value.	Tons.	Value
Jan.	459	$18,897	1,240	$45,117
Feb.	888	36,874	324	10,428
Mar.	13	1,092	145	6,074
Apr.	.....	.....	382	14,533
May	6	610	383	14,622
June.	.....	.....	400	15,567
July	.....	.....	351	13,109
Aug.	.....	.....	63	6,014
Sept.	50	9,200	25	3,051
Oct.	.....	.....	.....	.....
Nov.	.....	.....	.....	.....
Dec.	.....	.....	337	13,969
Totals.	1,416	$66,673	3,623	$142,484

NITRATE OF SODA.

	1915		1914	
	Tons.	Value.	Tons.	Value.
Jan.	.....	.....	.....	.....
Feb.	6,676	$150,658	.....	.....
Mar.	.....	.....	4,607	$121,005
Apr.	15,081	282,866	2,745	56,657
May	10,540	348,427	6,769	188,827
June.	11,852	412,617	6,225	143,898
July	5,882	120,644	9,494	225,336
Aug.	5,800	162,806	4,068	161,472
Sept.	10,685	269,614	5,558	185,720
Oct.	.....	.....	10,483	245,689
Nov.	.....	.....	3,824	86,644
Dec.	10,459	268,455	.....	.....
Totals.	76,975	$2,016,177	54,671	$1,414,288

SULPHATE OF AMMONIA.

	1915		1914	
	Tons.	Value.	Pounds.	Value.
Jan.	1,884	$101,122	1,296,441	$37,944
Feb.	803	47,218	2,697,587	624,466
Mar.	610	33,855	6,958,440	203,341
Apr.	1,364	81,751	2,528,827	72,710
May	422	25,725	182,924	4,902
June.	141	8,839	540,333	14,213
July	167	8,757	1,429,120	36,028
Aug.	.....	.....	1,366,400	34,768
Sept.	.....	.....	2,197,440	52,869
Oct.	.....	.....	3,321,920	82,039
Nov.	103	7,414	1,039,360	27,009
Dec.	443	34,393	2,031,680	52,521
Totals.	5,937	$349,074	14,990,623	$680,810

BONE DUST AND BONE ASHES.

	1915		1914	
	Tons.	Value.	Tons.	Value.
Jan.	.....	.....	200	$6,777
Feb.	.....	.....	766	17,008
Mar.	.....	.....	1,161	32,907
Apr.	.....	.....	801	19,531
May	896	$22,875	724	22,327
June.	61	1,943	859	22,327
July	.....	.....	1,849	40,579
Aug.	757	15,968	1,021	24,461
Sept.	.....	.....	518	14,401
Oct.	500	9,549	34	459
Nov.	.....	.....	.....	.....
Dec.	502	12,334	.....	.....
Totals.	2,716	$62,669	7,924	$194,987

ALL OTHER FERTILIZERS.

	1915. Value.	1914. Value.
January	$5,135	$203,534
February	8,248	17,897
March	30,468	25,803
April	2,550	89,067
May	910	25,852
June	511	46,280
July	23,317	31,717
August	.....	6,014
September	688	3,051
October	.....	.....
November	21,032	27,652
December	7,382	29,834
Totals	$100,241	$323,501

PYRITES.

	1915		1914	
	Tons.	Value.	Tons.	Value.
Jan.	12,812	$72,494	11,209	$67,206
Feb.	10,493	56,360	21,361	142,417
Mar.	12,639	52,765	16,574	78,630
Apr.	8,792	54,969	.....	.....
May	7,475	31,428	28,350	177,981
June.	24,253	142,750	11,382	81,733
July	21,694	112,674	16,982	104,994
Aug.	37,413	196,876	10,398	72,405
Sept.	7,509	45,941	24,662	165,759
Oct.	26,186	163,827	8,721	50,207
Nov.	12,801	77,267	5,136	16,184
Dec.	5,630	19,373	5,876	22,145
Totals.	186,697	$1,046,724	160,631	$979,661

RECAPITULATION.

	1915 Pounds.	1915 Value.
Kainit	1,128,960	$2,357
Manure salt	8,960,000	42,830
Muriate of potash	20,431,040	341,147
Sulphate of potash	2,171,840	66,673
Nitrate of soda	172,424,000	2,016,177
Sulphate of ammonia	13,298,880	349,074
Bone dust and ash	6,083,840	62,669
Guano	.....	.....
All other fertilizers	.....	100,241
Pyrites	418,201,280	1,046,724
Totals	642,699,840	$4,227,892

	1914 Pounds.	1914 Value.
Kainit	77,392,000	$139,589
Manure salt	77,813,920	320,390
Muriate of potash	91,367,360	1,319,221
Sulphate of potash	8,115,520	142,484
Nitrate of soda	122,463,040	1,414,288
Sulphate of ammonia	14,990,623	680,810
Bone dust and ash	17,749,760	194,987
Guano	586,880	5,878
All other fertilizers	.....	323,501
Pyrites	359,813,440	979,661
Totals	760,292,543	$5,520,909

The year 1915 has been exceptional for the extent of the fluctuations in the price of crude stocks. Not in a long time has there been such a wide range of prices, nor have some of the principal materials required by the manufacturers of mixtures been so high. Certain of these materials, like acid phosphate, have almost doubled in value, while others have increased more than 1,000 per cent, and at that there has been uncertainty about an adequate supply, the producers having found other outlets which absorbed stocks in large quantities, leaving the fertilizer trade in a state of doubt as to whether their needs would be entirely met.

Tankage, which began the year with the quotations fairly high, at $3.10 and 10 for 11 and 15 high grade ground stocks, c. a. f. basis Baltimore, sagged by July to $2.60 and 10, but the following month commenced to rise and remained on the upward trend until December, with the price about the first of that month at $3.45 and 10. Since then some reaction has developed, but the large Western producers decline to make important concessions, though the members of the fertilizer trade here say that purchases of tankage are made from nearby producers at considerably under the Western price. With regard to blood, it is to be said that while this animal ammoniate, because of the much smaller quantity produced, is usually higher than tankage, the absence of the South, ordinarily the chief consumer, as a heavy buyer, has served to hold prices down about on a level with tankage, whereas under what might be called normal circumstances, the quotation would be from 10 to 15 cents a unit higher. Ground concentrated tankage has figured in the movement only to a very restricted extent.

The quotations on acid phosphate, as will be seen from the table given below, began the year at $6.75 for 14 per cent., and $7.25 for 16 per cent. acid, and closed with the figures at $14 and $13.50, respectively, with the offerings by no means heavy, and suggestions of even higher prices thrown out. This extraordinary rise was, of course, largely due to the special demand from munition factories, which not only absorbed all of the surplus usually available, but made it doubtful at times if the necessities of the fertilizer manufacturers would be adequately met, especially since some of these manufacturers had neglected to secure themselves with contracts. Not all the increase in price, however, can be credited to the increased demand. Allowonce must also be made for the advance in the price of phosphate rock, and the higher freight rates, which increased the cost of manufacturing acid phosphate not a little.

The big advance in nitrate of soda is due, of course, primarily to the extensive needs of the European nations at war, but in part also to the high ocean freight rates, and to the closing of the Panama Canal by slides, making it necessary for vessels to take the long outside route, which requires more than twice as long as the trip via the canal.

Equally striking was the rise in the price of sulphate of ammonia from $2.55 per 100 pounds in January to $3.47½ in December, and a further increase since then to above $4. This increase is attributable in the first place to the growing scarcity of tonnage, which constitutes a serious handicap upon the importations of foreign sulphate. In addition, the foreign producers, chiefly England, found their own requirements so augmented that they put a virtual embargo upon the product, letting out only the surplus, and that even with the demand here very quiet most of the time, the quotations have steadily gone up, and the topmost limit seems not yet to have been reached.

As for potash, the history of this material since the beginning of the war is so familiar to everyone that little or nothing need be said about it. Some small lots of potash were received here as late as last March, and even after that time some muriate and sulphate drifted in. But the German supply has been practically cut off since the first of the year, and as a consequence prices have gone almost out of sight. From the regular quotations of the German Kali Works, plus $4 per ton for additional expense of shipment, muriate has risen to $450, and even $475 per ton, and it is now suggested that offers of $500 might bring out muriate in considerable quantities. The returns for the various kinds of potash varied greatly with the requirements of individual purchasers, and it is not easy to set a figure.

Bone has also been marked up, and for some time the quotations remained very firm, showing still further buoyancy in the last two or three weeks. The receipts of this material also declined, other countries evidently having augmented needs or the difficulties of making shipment being such as to constitute a check upon the movement. At the present time bone is higher than in years, and the market may work still further upward.

The variations in the quotations, taking those about the first of each month, were as follows:—

	Tankage, 11 and 15 ground.	Blood, ground.	Ground concentrated tankage.
January	$3.10	$3.10	...
February	2.85	2.85	...
March	2.85	2.90	...
April	2.80	2.80	...
May	2.70	2.75	...
June	2.60	2.67½	...
July	2.60	2.60	...
August	2.65	2.67½	...
September	2.68	2.67½	...
October	2.60	2.67½	...
November	3.42½	3.43	...
December	3.45	3.45	...

	Acid phosphate 14%	Acid phosphate 16%	Nitrate of soda.	Sulphate of ammonia.
January	$6.75	$7.25	$1.85	$2.55
February	6.75	7.25	2.05	2.90
March	7.75	8.25	2.12½	2.90
April	7.75	8.25	2.30	3.15
May	7.75	8.25	2.30	3.05
June	7.75	8.25	2.30	3.20
July	7.75	8.25	2.32½	3.37½
August	7.75	8.25	2.37½	3.40
September	8.50	9.00	2.45	3.30
October	8.75	9.25	2.65	3.45
November	12.50	12.00	2.90	3.45
December	14.00	13.50	3.00	3.47½

POTASH—BALTIMORE AND NORTH.

	Kainit, in bulk.	Kainit, in bags.	Muriate.	Sulphate.
January	...	...	...	...
February	...	...	$100	...
March	...	...	125	...
April	...	...	150	...
May	...	...	225	...
June	...	...	225	...
July	...	...	250	...
August	...	...	225	...
September	...	...	250	...
October	...	...	300	...
November	...	...	400	...
December	...	...	430	...

	Bone— 4½ and 50 ground raw.	3 and 50 ground steamed.	1 and 60 bone flour.	Fish scrap.
January	$30.00	$24.75	$21.25	$2.85
February	27.75	24.50	20.75	...
March	27.75	24.75	20.25	...
April	27.75	24.75	20.25	...
May	27.75	24.75	20.25	...
June	27.75	24.75	20.25	2.60
July	28.00	24.75	20.25	2.60
August	28.00	24.75	20.25	*2.60
September	30.00	25.00	22.50	2.82½
October	31.00	25.00	...	3.35
October	31.00	26.00	...	3.35
December	32.00	27.00	‡27.00	§3.50

*Down the bay.
†In bulk.
‡In bags.
§At factory.

ATLANTA.

How the European war and war conditions hit the fertilizer industry in this territory is eloquently told in the figures showing sales in Georgia for 1915, as compared with those of 1914.

During the year 1915 Georgia consumed 738,962.4 tons of commercial fertilizers, and 134,017 tons of cottonseed meal, as shown by the official figures of the State Department of Agriculture. The tremendous difference is indicated in the figures for the previous year, 1914, when Georgia consumed 1,282,698 tons of commercial fertilizers—her record consumption—and 148,281 tons of cottonseed meal.

It was pointed out at the beginning of 1915 that the season then confronting the trade would probably be one of the worst in all its history. These figures certainly bear out that prediction. Nor are conditions today ahead of the industry in this territory any better than they were then.

As a matter of fact, present conditions are absolutely uncertain, and probably worse than they were a year ago. Notwithstanding the fact that the farmers of Georgia made an excellent cotton crop, which is bringing a fairly good price, most of them are not only holding their remaining cotton for a still higher figure, but are threatening to use no fertilizers at all this year at present prices, unless the price of cotton materially improves. Farmers union organizations at various points in the State have recently adopted resolutions declaring that they would use no commercial fertilizers this year at the present price of fertilizers, and at the present price of cotton. Many others are individually taking a similar stand. In other words, they say unless cotton goes to 15 cents or above they will use no fertilizers at all, unless there is a material reduction in their price.

This attitude on the part of Georgia farmers is already having its effect upon the trade. While the big manufacturers bought rather extensively of materials in the early fall to get ready for the new season, the mixers and smaller people have bought nothing as yet and declare that they will do nothing unless conditions change materially. For this reason there is an absence of activity in the fertilizer material market at this time, and so far as it can be seen it will continue until conditions change, or until it shall develop, if it does, that the big manufacturers need an additional supply of materials to carry them through the season.

The absence of potash constitutes another perplexing problem, and manufacturers are working to the end of getting either a substitute or some basis of supply of that material in this country. So far they have had practically no success in this direction. Some of the companies are calling attention to the lime filler used in their goods, upon the well known theory that the use of lime in the soil aids in extracting the natural potash and making it available for plant life.

Official figures of the State Department of Agriculture, based on the sale of inspection tags during the respective seasons, indicate the following consumption of fertilizers and cottonseed meal in Georgia during the past five years:—

Season.	Fertilizers, tons.	Cottonseed meal, tons.
1910-11	1,202,722	129.748
1911-12	1,103,864	121,236
1912-13	1,120,693	122,975
1913-14	1,282,698	148,281
1914-15	738,962.4	134,017

There is no possible indication in the sale of fertilizer tags by the Department of Agriculture since the opening of the new season as to its business. The sales have been few and scattering, and everybody is waiting to see what is going to happen, even before paying the usual State tax.

The year opened in the fertilizer material market here with fairly good prices, although nothing like those to which they have advanced as the season went along. With the beginning of the season fertilizer manufacturers exhibited an inclination to wait until they received actual orders. Materials were not then advancing as rapidly as they have done in the last few minutes, and the larger manufacturers were then buying from hand to mouth. Farmers had failed to pay their October and November notes because of the low price of cotton in the fall of 1914, and manufacturers were feeling that they were compelled to demand either cash or good collateral. This at once had a tendency to cut down the consumption for the year, although, of course, the greatest factor was the low price of cotton and the fact that the farmers generally had no money.

In January, 1915, material sales were few and far between. Collections were unsatisfactory and showed few signs of improvement. Cottonseed meal sold around $25, although it jumped later in the month to $27. The situation the latter part of the month showed some improvement, with other materials higher and the manufacturers still doing a hand-to-mouth business. The bulk of the goods was being made on direct orders, and some improvement was noted in market quotations, both blood and tankage advancing during the month. There was still a little potash offering, some small lots of kainit being sold at $16 to $18, and a very little muriate from $65 to $85.

February opened up with a better feeling in the material market than at any time since the beginning of the European war. The month brought trading in several materials and the outlook was considered fairly good. The improvement was due almost directly to the rise in the price of cotton. With this increase in the price of cotton collections immediately began to get better and purchasers of fertilizer materials for early orders began to follow. Good crop prospects also had some effect on the situation, especially the fact that the planting of food crops and grain had been more general in Georgia and adjacent territory than ever before in their history. Cottonseed meal and the ammoniates held strong at prices indicated with the close of January. Nitrate of soda jumped up and potash began to climb, what little kainit there was selling at $28, and muriate around $120, with all that was available being taken. There was considerable trading during the month in tankage and blood, and prices held firm. There were indications of a swift season which would put all of the bag goods to be sold into the hands of the consumer within a comparatively short time.

March witnessed a slackening up in the trading in materials, due to a variety of causes, chief among which was considered the bad weather conditions which afforded little opportunity for preparing the ground and planting. Farmers began to see that it was necessary to use cottonseed meal to a certain extent in the place of potash, and there was very little kainit used in the bag goods offered. Purchasers were buying only as they needed supplies, and it was then clearly apparent that consumption would fall far below that of the previous season. The latter part of the month showed a little spurt in trading, particularly in nitrate of soda, blood and tankage, but owing to weather conditions sales of bag goods continued unusually slow. Roads all over the country were in bad condition, and it was practically impossible to haul fertilizers if they had been purchased. The prices of materials changed little. Cottonseed meal was holding around $25, and there was little trading. Practically the only strengthening was indicated in nitrate of soda.

The beginning of April saw the opening up of the real bag goods season, and the last week in March and the first part of April showed normal shipments. Planting time was right at hand and it was necessary for the farmer to do quickly what he intended to do. Dealers and brokers stated that the season was the latest they had ever known in the history of the State. It became apparent that the consumption in Georgia would reach 50 or 60 per cent. of that of 1914, and predictions were made that it would reach around 800,000 tons. If meal is included, it will be seen from the figures above that it was considerably in excess of this amount. Manufacturers had considerable supplies of materials on hand, and the demand for them was rather slack. Similar increase in the bag goods tade was noticed as the month advanced. As a matter of fact there was no doubt that manufacturers could have sold far more fertilizers than they did if they had been willing to extend credits generally and to every one who asked them. But they eliminated from their list many customers who were unable to pay cash. Slight strengthening was shown in meal and other materials, but prices remained about the same as during the previous month.

The rushing business done in the bag goods trade in April showed some slackening up in May. Manufacturers stated that they had sold everything they cared to, and some of them reported that they could have placed many more goods than they did, except for the reasons stated. It was apparent that consumption would be somewhat in excess of estimates made a month before. May brought practically the end of the material trade for the season, and activity ceased. Materials began to show a slight decline, due to the stagnant condition of the market. Cottonseed meal fell slightly to $24.50, with no trading. There was no trading in blood and tankage, and very little in any of the other materials. It was then thought that the season's business had reacherd 70 to 75 per cent. of that of 1914, but subsequent official figures showed that this estimate was not entirely borne out. As a matter of fact, the season's sales ran about 60 per cent. of those of the previous year.

It was in May and the beginning of June that considerable activity began to be noted in the market for pyrites. Sulphuric acid began to be in great demand for use in the manufacture of explosives, and many fertilizer factories went to making it for that purpose only. The manufacturers of war materials took the entire output of the Tennessee copper plants, upon which much dependence has long been placed by the makers of fertilizers, and paid a big profit for it. Fertilizer factories wherever they could get orders at the high prices, took them and sold to the powder makers. As a result,

pyrites went up as high as 15 cents per unit of sulphur, and a little later in the season the effect began to be noted upon acid phosphate.

During June and July, the summer months, there was practically no trading of any kind in fertilizer materials, and prices remained purely nominal. It was noted in July that the International Agricultural corporation had just sold all of its sulphuric acid to the powder people, and this had immediate effect upon the price of acid phosphate, which jumped from $8 to $10 at interior points, and from $7 to $8 at coast points. Owing to the situation, dealers in this commodity began to hold it for still higher prices, notwithstanding the fact that there was little trading.

It was noted again in August that the most interesting feature of the local material market was the remarkable strengthening of bulk acid, attributable to the conversing of sulphuric acid for the making of powder. Prices of bulk acid continued to climb. Other materials strengthened somewhat, but quotations remained largely nominal. It was in August that cottonseed meal began to show considerable strength, owing to the fact that it was apparent it would have to be largely used on account of the absence of potash.

With the beginning of September there was a growing conviction that the approaching fertilizer year was one which would have to be built most largely upon bulk acid and cottonseed meal. This was foreshadowed in the still climbing price of acid phosphate, and the unusual activity in the meal market. Many of the purchasers of fertilizers had at this time bought their requirements of cottonseed meal and were making their plans for the new season upon that basis. Another factor in the price of meal was the demand which came from European nations at war, where it was used as a stock food. In the latter part of September the price of meal jumped up to $30 a ton, and bulk acid was holding strong at $10.50 interior and $9.50 coast points. There came a lull in the trading at this time, as it was the season for the settling of fall accounts. The continued good price of cotton and the general belief then expressed that the farmers would pay up rapidly, lent much encouragement to the situation.

The October market here at its opening in materials was at a standstill, with the single exception of cottonseed meal, the demand for which continued to increase and the price jumped up to $33. Outside of meal, however, there was comparatively little trading. Blood and tankage showed increased prices. Nitrate of soda jumped up to $2.77, and acid phosphate to $12 interior and $10.50 coast points. It was apparent that there would be no potash whatever used in the coming season's goods. Later in the month marked increase in prices was shown all along the line. There was, however, little trading in the ammoniates. Nitrate of soda went to $2.85, and acid phophate jumped to $13 in the interior and $12 at coast points.

There were indications of strong picking up and good trading in the early November market, especially in the ammoniates, including tankage, sulphate of ammonia and others. Prices advanced rapidly and acid phosphate again climbed, going up to $14 interior and $13.50 coast points. Notes were paid off rapidly, although the farmers were still holding their cotton. The high price brought by cottonseed enabled many of them to pay out with that alone, to hold their cotton for higher prices. The extraordinary demand for sulphuric acid by manufacturers of explosives continued to affect the prices of fertilizer materials. It was apparent that the supply of acid phosphate would be extremely short, and there was a scramble to get it. Manufacturers of this product sold their output rapidly, and announced that they could not make any more, owing to the fact that the supply of sulphuric acid had been sold to the powder mills for twelve to eighteen months ahead. Prices remained strong throughout the month.

Due to the approaching holiday season, trading in the material market was quiet during the early part of December. The time for payment of the last notes, the middle of the month, was approaching, and it was the general opinion that everybody was waiting to see how things turned out. Meal was stronger, and nitrate of soda, went to $2.90. During the latter part of December the market remained inactive and dull, there being little or no change in the situation. There was a slight advance in nitrate of soda to $2.95, with some little trading in this material, but outside of that there was practically nothing doing. The payment of notes was good, but otherwise the situation was similar to any holiday season, and there was no prospects of any business of consequence before the first of the year.

The range in price of cottonseed meal, acid phosphate, sulphate of ammonia and nitrate of soda is shown in the following table for the Atlanta market during 1915. The figures given are the highest prices attained by the product in question for each month quoted. Cottonseed meal and acid phosphate prices are basis Atlanta, while sulphate of ammonia and nitrate of soda are given ex-vessels South Atlantic ports:—

	Cottonseed Meal.	Acid Phosphate.	Sulphate Ammonia.	Nitrate Soda.
January..	$23.00	$9.00	$3.10	$1.87½
February.	27.00	9.00	3.10	2.10
March.....	26.00	9.00	3.10	2.20
April.....	25.50	8.75	3.00	2.27
May.....	25.00	8.50	2.95	2.27½
June.....	24.50	8.00	2.95	2.25
July.....	23.50	8.00	2.95	2.30
August...	25.00	10.00	2.95	2.30
September	26.00	10.50	2.95	2.30
October...	33.00	12.00	3.10	2.77
November	30.00	14.00	3.50	2.85
December.	35.00	14.00	3.50	2.95

At the beginning of the year blood and tankage were quoted at $2.92 and $2.95 and 10, with fish guano at $3. These prices varied slightly from time to time with a comparatively dull market throughout the year. In October trading was somewhat more brisk in these materials, while in November and December there was comparatively little to be had. The following table shows the highest monthly quotations of these commodities during 1915. Blood and tankage prices are basis Atlanta, while fish guano is based ex-vessel Savannah, or Norfolk, depending upon the source of supply:—

	Blood.	Tankage.	Fish guano.
January	$2.92	$2.95 & 10	$3.00 & 10
February	3.00	3.00 & 10	3.10 & 10
March	3.00	3.00 & 10	3.10 & 10
April	2.95	2.95 & 10	3.00 & 10
May	2.80	2.75 & 10	3.00 & 10
June	2.80	2.75 & 10	3.00 & 10
July	2.80	2.75 & 10	3.10
August	2.80	2.75 & 10	3.10
September ..	2.85	2.85 & 10	2.85 & 10
October	3.15	3.10 & 10	3.00 & 10
November ..	3.80	3.75 & 10	3.10 & 10
December ...	3.80	3.65 & 10	3.10 & 10

There has been little or no potash salts in the market during 1915. There has been a little kainit obtainable at prices varying from $15 to $35 during the first half of the year, but practically no muriate for fertilizer purposes. There were no quotations at any time during 1915 on manure salt. Muriate was quoted at prices ranging from $65 to $250 a ton, until August, when the supply was cut off entirely. The following quotations represent the highest prices on potash salts during 1915, being quoted basis ex-vessel Savannah:—

	Kainit.	Muriate.
January	$17.00	$83.00
February	28.00	120.00
March	27.00	120.00
April	32.00	155.00
May	32.00	....
June	35.00	....
July	....	....
August	....	250.00
September	....	250.00
October	....	250.00
November	....	....
December	....	....

As already shown, the coming season is uncertain, and it is not known what the farmers will do. It will depend largely upon whether the price of cotton goes any higher, for it is not believed that there is anything that can happen to cheapen the price of fertilizer materials.

There has been no fertilizer legislation during the year, and the manufacturers do not know yet what is going to happen. The larger manufacturers are prepared for almost any contingency, except in the demand for potash, and the mixers or smaller manufacturers, as stated, have bought practically nothing.

CHICAGO.

Convalescing from the general collapse that followed the outbreak of war in 1914, the fertilizer trade at Chicago in 1915 was of increased volume on a cheaper basis of prices. It was larger in tonnage than in 1914, but by no means of normal proportions and much smaller than in years immediately preceding 1914.

Orders and business in animal ammoniates came in spurts. It was a year of ups and downs and the fact that there were more ups than downs was about the only thing that saved the trade from experiencing another year of disappointment.

Prices opened the year at a lower level than at the start of 1914 and worked downward for the first six months of the period. Then there was a gradual upward movement for three months and the year closed with values shooting upwards about as rapidly as they have ever been known to climb.

The trade generally was at the mercy of numerous outside influences. The war; transportation facilities; freight rates; market prices of cotton, seed, meal and wheat and many other conditions were factors that influenced the trade and value of fertilizers.

Production of domestic products was as voluminous as in any recent year, but there was a scarcity of the foreign products throughout the period, and this caused curtailment of the use of domestic goods, where consumers had been in the habit of mixing the domestic with the foreign.

The high price and scarcity of potash, for instance, were responsible for less general use of blood and tankage. Sales of the latter were also shortened because of the uncertain market value of cotton during most of the year. The high price of wheat brought about an increased demand for steamed bone, which was used over a wider area than ever before, because of its known qualities as a tonic to wheat-producing soil.

The increased use of tankage as a live stock food also cut into the supply of the product available for the fertilizer trade and furnished an outlet for surplus production. This made producers independent and there was not much price cutting done to attract orders at times when buyers and sellers differed in their opinion of the market.

At the beginning of the year, ground high-grade tankage sold at $2.40 and 10 f. o. b. Chicago and up to $2.45 and 10. From that level there was a gradual decline to $2.20 and 10, which was the low spot of the first half of the year and was touched in May. More sales were made at this low price in June, when the market value of the cotton crop was in doubt, but buyers appeared to look upon $2.20 and 10 as an exceptionally low figure and there was sufficient demand developed to bring about a slight rally, sales in July being held within a range of $2.25 and 10 to $2.30 and 10.

August was another slow and weak month in the trade and prices dropped back to the season's low price of $2.20 and 10 and closed with a downward tendency, which brought values down to $2.15 and 10 before the first few days of September had passed. From then on holders assumed control of the situation and values were forced steadily upward. The advance was rapid, the high market for the year being attained the later part of October, when sales were made on a basis of $3.15 and 10 f. o. b. Chicago, or within 10c. per unit of the high price made in 1914.

A small reaction was made in following months, and the market closed at a decline from the high spot of the year, but the outlook was much more promising than at the same time the previous year, and traders predicted a more prosperous year in 1916.

Following tables give the monthly high and low prices made by ground high-grade tankage at Chicago in 1915 and comparative monthly high and low prices made in 1914 and 1913:—

	1915 High.	1915 Low.	1914 High.	1914 Low.
Jan.	$2.45 &10	$2.40 &10	$3.07½&10	$3.00 &10
Feb.	2.45 &10	2.40 &10	3.22½&10	3.15 &10
Mar.	2.45 &10	2.37½&10	3.25 &10	2.22½&10
Apr.	2.35 &10	2.30 &10	3.15 &10	3.05 &10
May	2.35 &10	2.20 &10	3.02½&10	3.00 &10
June	2.30 &10	2.20 &10	3.00 &10	3.00 &10
July	2.30 &10	2.25 &10	2.55 &10	2.55 &10
Aug.	2.35 &10	2.20 &10	2.95 &10	2.95 &10
Sept.	2.40 &10	2.15 &10	2.60 &10	Nominal
Oct.	3.15 &10	2.55 &10	2.60 &10	Nominal
Nov.	2.95 &10	2.90 &10	2.72½&10	2.58 &10
Dec.	3.00 &10	2.90 &10	2.47½&10	2.47½&10
Year's range	3.15 &10	2.15 &10	3.25 &10	2.47½&10

	1913 High.	1913 Low.
January	$2.42½&10	$2.40 &10
February	2.45 &10	2.42½&10
March	2.55 &10	2.47½&10
April	2.65 &10	2.60 &10
May	2.52½&10	2.47½&10
June	2.47½&10	2.45 &10
July	2.40 &10	2.32½&10
August	2.40 &10	2.37½&10
September	2.70 &10	2.45 &10
October	2.85 &10	2.75 &10
November	3.05 &10	2.90 &10
December	3.10 &10	3.05 &10
Total range	3.10 &10	2.32½&10

Blood opened at a premium of 20c. over tankage, selling at $2.60@2.65 f. o. b. Chicago, which was practically the same as at the beginning of 1913, but stood 60c. lower than at the start of 1914. Trade during the entire period was rather less active than in tankage, and although blood's premium in price over tankage was increased to 25c. per unit in May, it was reduced to only 12½c. in July, when sales were made at $2.42½ and tankage at the same time sold on a basis of $2.30 and 10. The low point for blood in 1915 was made in the early part of September, when transactions were recorded at $2.35 f. o. b. Chicago.

An upward movement of values soon followed, however, and the close of September found blood selling at $2.47½. This was followed by further upward gains and a high mark for the year was touched in October, when sales were made on a basis of $3.25 f. o. b. Chicago. This latter price compared with an extreme price of $3.45 made in March of 1914.

The close of the year was with blood selling at $3.12½ f. o. b. Chicago, or 12½c. per unit lower than at the high time for the year. The market was in a healthy condition, however, and traders were confident of a steadily increased volume of business at better values.

The following tables give the monthly high and low prices paid for blood at Chicago in 1915, with comparatively monthly high and low figures made in 1914 and 1913:—

	1915 High.	1915 Low.	1914 High.	1914 Low.	1913 High.	1913 Low.
Jan.	$2.65	$2.60	$3.25	$3.20	$2.62½	$2.60
Feb.	2.65	2.60	3.40	3.30	2.65	2.60
Mar.	2.65	2.57½	3.45	3.28	2.80	2.65
Apr.	2.55	2.50	3.30	3.25	2.85	2.82½
May	2.60	2.40	3.20	Nom.	2.80	2.70
June	2.50	2.40	3.20	Nom.	2.67½	2.65
July	2.42½	2.40	2.75	Nom.	2.65	2.60
Aug.	2.40	2.37½	3.15	Nom.	2.70	2.65
Sept.	2.47½	2.35	2.80	Nom.	2.80	2.70
Oct..	3.25	2.70	2.80	Nom.	3.05	2.90
Nov.	3.12½	3.10	2.80	Nom.	3.20	3.05
Dec.	3.12½	3.00	2.65	2.65	3.30	3.05
Year's range	3.25	2.35	3.45	2.65	3.30	2.60

Business in steamed bone was of enlarged proportions and the market had a buoyant undertone, ruling around $21 to $22 a ton most of the period. Lower grades of tankage, concentrated tankage and garbage tankage met with a fairly general demand and sold at the usual discount under the high-grade packers' tonnage.

PHILADELPHIA.

The year 1915 witnessed perhaps the widest fluctuation in values of fertilizer ingredients ever known to the trade.

Phosphate rock, which is the basis of practically all fertilizers, has been very low in price, the average f. o. b. mines figure reaching very close to $2 per ton in some instances, and the basis of 68 per cent. B. P. L. in the Florida territory.

The very high ocean rates of freight, and the scarcity of bottoms, have curtailed a large part of the foreign movement of this rock, and the warring conditions in Europe have still further curtailed export shipment. In the domestic field many shipments have moved by rail which heretofore were transported by boat, both on account of the uncertainty of securing vessels, and also the high rates of freight asked for same.

Sulphuric acid, which is so largely used in the fertilizer industry for acidulating this rock and other materials, has soared to new high levels in price. The 50 deg. acid, which in normal times sold in large quantities for about $6 per ton, has sold in the open market for from $25 to $30 per ton during the war disturbance of 1915.

Oil of vitriol, which is the concentrated form of the chamber acid above referred to, has brought any price that the manufacturers chose to ask for it. This extraordinary advance has been due to the revival of the general chemical industry, to meet the tremendous demand for this acid from manufacturers of ammunition, and particularly for nitrating purposes.

The necessity for obtaining the oil of vitriol at any price has been so great among the powder manufacturers that the normal industries using the acid have been obliged to follow the price lead of the powder makers, in many instances at a very great loss to themselves.

On account of the tremendously high price of acid acid phosphate has also reached new high levels, and 16 per cent. available acid phosphate is now quoted at from $13 to $15 per ton, whereas in the early part of the year 1915 it could be secured at $7.50 per ton.

Muriate of potash in normal times sells at about $40 per ton. In the beginning of 1915 this was worth $100 to $150 per ton, but by December it had sold at $490 per ton. The extraordinary call for these goods and the consequent high price have placed muriate of potash beyond the realm of the fertilizer industry, and it has been used mostly by chemical manufacturers for the production of chlorate of potash, bichromate of potash, carbonate of potash, and other potash-containing materials.

Bulk potash salts are still available in small quantities for fertilizer purposes but they have advanced some four to five hundred per cent. in price during the year 1915.

Nitrate of soda, which opened the year 1915 at a price of from $2.10 to $2.20 per 100 pounds, also made new high records within the closing part of the year 1915, due to the enormous demand from chemical manufacturers, glass makers, and, most of all, ammunition plants. By the end of the year it was selling for 3½c. a pound, and has advanced still further at this date.

Animal ammoniates advanced in price during the year, but did not record any such wonderful advances as were noted in the strictly chemical products noted above.

The fertilizer trade as a whole was satisfactory in volume and has adapted itself much more rapidly than was expected to the changed conditions and the new varieties of fertilizers necessitated by the cutting off of all potash supplies since last spring. While in some sections fertilizers used for potatoes had never contained less than 10 per cent. of potash, the spring fertilizer of 1915 for this same crop contained only 2 or 3 per cent. of potash, and in some instances the field results compared very favorably with those of other years obtained from goods containing larger percentages of potash.

The fall trade of 1915 was about normal in volume, but few of the fertilizers contained any potash at all, on account of the very high price of this commodity.

Collections for the year have varied in different sections. The South raised a great many potatoes in the spring of 1915, for the first time in years, and they reached the Northern markets in poor condition, just at the time that the potatoes from the North were being received by the commission houses. As a consequence, potatoes sold in the spring of 1915 at the lowest price known in twenty years, and where the farmer was dependent upon the sale of his potatoes for paying his fertilizer bill many accounts had to be carried over to another season for settlement. Fortunately, the price of potatoes improved during the year, and growers who were able to hold their crops until late in the season received a very fair price for same.

The outlook for 1916 is favorable, and the normal volume of trade is expected, even under the present abnormal conditions and variations in the goods.

New York Dye Market

The question of securing supplies of dyes and dye materials was paramount during the year. The dependence of this country on outside sources had been amply demonstrated in the latter part of 1914. The scarcity of stocks became more pronounced as the year advanced, and while scattered imports were noted throughout the period, they were comparatively small in volume, and in many cases fell into speculative hands with the result that abnormally high prices were asked for whatever was asked. The most important development of the year was the progress made in establishing a home dye industry. The growth of the domestic industry may be inferred from the fact that at the close of the year thirty-four companies in this country were engaged in the manufacture of crudes, intermediates or finished dyes. Previous to the war foreign goods were in such control of the situation that the domestic output of the above materials reached a total of but 3,000 tons per year, while production at the close of the year is estimated at the rate of approximately 15,000 tons a year. An official report on the situation states:—

The domestic supply of the crudes has now assumed large proportions. The approximate monthly output at present, in short tons, is:—Benzol, 7,500; toluol, 7,870; xylol, 950; naphthaline, 12,500; phenol, or carbolic acid (chiefly synthetic), 10,000 tons. Unfortunately, the demand for phenol, benzol and toluol, to be used in the manufacture of explosives, is now so abnormally high that there has been some difficulty in securing enough for the makers of coal-tar intermediates. The manufacture of these latter, especially of aniline, has suddenly grown to considerable proportions and is constantly increasing. There are over seventeen firms now engaged in this branch, and others are now entering the field. There are twelve firms now engaged in making finished coal-tar dyestuffs.

The scarcity of dyes was severely felt in many branches of the textile trade, and when aniline products were no longer available recourse was had to the wood and vegetable dyes. The latter were not in sufficient supply to meet demands, and prices appreciated accordingly, due in part to the preponderance of demand over supply and in part to the higher transportation rates which became effective. Late in the year an embargo was laid on shipments of logwood from Jamaica and British Honduras which served to complicate the situation still more. Practically everything in the list of dye materials went up in price during the year. In the case of foreign materials this was brought about by higher prices at primary points and increased ocean freights. In the case of domestic materials advanced prices were the result of higher producing costs, with the raw materials affected in various ways.

EGG ALBUMEN.

Fairly free offers of Chinese egg albumen were made in the early part of the year, with prices quoted at 50@

BICHROMATE

OF

POTASH

BICHROMATE

OF

SODA

MUTUAL CHEMICAL CO. of AMERICA

55 John Street, New York, N. Y.

Factories:

Jersey City, N. J. **Baltimore, Md.**

55 cents per pound. Stocks were held in bond in the local market to apply against contract offers and spot offers also were numerous. In March there were reports of congestion of freights at Chinese shipping points, and this had the effect or cutting down shipments. However, it was not until the latter part of the year that a scarcity of stocks was met. In September a rather sharp rise in prices was announced, and early in October 62 cents was quoted as an inside price. This soon gave way to higher figures, and the closing month of the year found the market practically bare of stocks and with 90 cents to $1 per pound as the nominal market quotation. Limited offerings abroad, scarcity of cargo room and high ocean freights were the factors most prominent in unsettling the market and pushing prices up to high levels. Shipments from China for the year are not definitely announced, but a report from Hankow reports the following exports to all parts for the calendar years mentioned:—

	1914		1913	
	Pounds.	Value.	Pounds.	Value.
Albumen—				
Dried	1,365,067	$281,362	1,433,733	$421,801
Liquid	459,867	39,597	196,133	15,620

ANILINE OIL.

At the beginning of the year aniline oil was held at 60 cents per pound in the spot market, but there was a sharp upward movement to prices in the first three months, and in the latter part of March $1.80 per pound was reached. Up to this time imported grades were in control of the market, but the influence of domestic oil began to be felt not so much in the spot market as in reports that the output would increase. Some consumers also were able to place contracts for future positions, and in general there was less desire to bid for spot material at high prices when there was a chance to secure supplies later on at more favorable terms. Contracts were then offered by domestic producers to cover delivery over a period of three years, beginning with July 1, 1915. The buyer fixes in the month of May, preceding each year, the amount of aniline required monthly during the twelve months commencing July 1. This amount may be increased or diminished in any month by the buyer to the extent of 5 per cent. He may not increase his monthly average for an ensuing year by more than 10 per cent., except at the option of the seller. Subject to these conditions the buyer purchases from the seller all aniline oil to be used by him during the three years. The price may vary between 10.93 cents and 15 cents after January 1, 1916. It is to be regulated "by the fair, average market price in the United States, as the same may be determined by competitive offerings and sale." There was a difference according to seller, however, in respect to prices, and later in the year contracts were made on a basis of 60 cents per pound. With the appearance of domestic oil in the market in larger quantities the spot price eased off, and in the latter half of the year 90 cents and $1.10 per pound was the prevailing quotation.

BICHROMATES.

Bichromate of potash was comparatively firm in price when the year opened, as the stringency of muriate of potash already had been felt. Sellers were quoting at 10 cents per pound and buyers were inclined to regard the price as high. Limited stocks and higher producing costs, however, quickly brought about further revisions, and the course of prices was steadily upward throughout the year. In February, 14@15 cents per pound was asked by leading sellers, and when the year was half over the quotation had reached 20 cents per pound. The second half of the year was a repetition of preceding months, and under the influence of higher producing costs bichromate of potash was repeatedly marked up in price until the quotation stood at 45 cents per pound in December, and the latter was the price in effect as the year closed. Bichromate of soda ran a parallel course with that described for bichromate of potash. Opening the year at 4¾ cents per pound, prices gradually improved until in March 5½ cents per pound was reached. There was no reaction in values as the year advanced, and at the halfway mark sellers were holding out for 10 cents per pound. As compared with prices in the years immediately preceding this showed a material advance, but the gain was slight when compared with the upward movement registered in the latter half of the year. During the second six months producers were confronted with unusual conditions and prices were carried to a high point of 25 cents per pound. Contracts for 1916 business were offered in the first half of the year at prices ranging from 6¼ to 7¾ cents per pound. Later in the period the contract price was less free, as some sellers were not eager to sell ahead. The high figure for contracts was reached toward the end of the year, when 18 cents per pound was established as a firm price. High prices for chrome ore and soda ash, abnormal demand for both home and export consumption and speculative buying were the main reasons for the spectacular advances which caused bichromate of soda to sell at the highest prices in the history of the trade.

CUTCH.

With the lack of aniline dyes, there was more interest in the market for cutch during the year, and the lower grades used in the tanning trade were also in good demand. The revival in consuming demand and the exceptionally high prices for material were the outstanding features for the period. The manner in which values fluctuated may be seen from the fact that at the beginning of the year sellers were quoting at 5½@7 cents per pound, while toward the close of the period the market quotation was 15@25 cents per pound. Stocks in all consuming markets were held at low levels for the greater part of the time, and the rise in prices was partly due to the fact that demand was in excess of supply. Owing to unsettled conditions in Europe there was a strong demand there for all tanning materials, and as some were not to be had there was a correspondingly stronger call for such as were available. This was reflected in the market for cutch and helped to strengthen values. Dyeing grades of cutch were in demand in domestic markets because materials formerly used were not offered, and even at the higher prices quoted cutch was freely taken.

DEXTRINE.

Leading producers of dextrine made frequent changes in their quotations for dextrine in the course of the year, but a review of the period shows that the net change was not important, as it amounted to but 8 cents per 100 pounds on the various selections. At the beginning of the year dextrine was quoted at $2.87 per 100 pounds, and the closing figure was $2.95 per 100 pounds. In the meantime there had been numerous prices asked, but advances were followed by declines, so that the market was prevented from going to the abnormal levels which were noted in the case of many other materials of this market. During the summer months production was on a smaller scale, and as buying reached fair proportions values were very firm and sellers were asking $3.30 per 100 pounds, which was the highest price of the year. As the grind increased and stocks became more liberal prices gave way from the high point and gradually receded until $2.95 per 100 pounds was reached, and this was the figure in effect at the close of the year.

GAMBIER.

While a good demand for gambier was reported in the opening months of the year, supplies were coming to hand in an encouraging way and market prices were not especially high. Offers at 5 cents per pound were heard in January, and the market was only fractionally higher in February. Firmer primary markets and high transportation charges became factors in March and 7½ cents per pound was quoted in the local market. Scarcity of other materials encouraged consumption of gambier, and there was a practical shortage of stocks in the local market in the latter half of the year. During October and November very little gambier was shipped from gambier, and some sellers were out of the market because they had no stocks to offer. The price for ordinary grades rose to 18 cents per pound in the New York market, and was in effect as the year came to a close.

INDIGO

A return to the use of natural indigo was made necessary in many cases during the year, owing to the absence of other dyes which had been used to replace the vegetable dye in previous years. Naturally the demand for indigo was restricted by the small offerings as the output has been decreasing in proportion to the growing use of the synthetic product. Imports of natural indigo were of good volume in the first half of the year, and there was intermittent buying over the entire period. Prices were based on grade with 85 cents to $3 per pound quoted early in the year. Later on the quotations were marked up, and as supplies grew smaller a corresponding increase in prices followed. At the close of the year the range of prices was represented by $1.50@5 per pound on a quality basis. Stocks held here were small and most of the offers heard were for shipment. A feature of the year was the bringing in of large amounts of synthetic indigo from China. It was reported that large amounts of German indigo in the original packages were held in that country, and steps were taken to bring it to this country. One importing company was said to have placed an order for 1,000,000 pounds, and as other factors entered the field there were numerous offers made to domestic consumers, and the latter contracted for practically that which was to be had. Prices were affected by those in effect for competing materials and holders in China wanted a good profit on the sales, so that a rather sharp advance was noted in the local market price as the year advanced. The limited amounts of German synthetic indigo which were held here or which was imported from Europe in the earlier part of the year was quoted at prices varying from 65 cents per pound to $1 per pound. When imports from China started to come in they were offered at 80 cents per pound, but this price did not last long and gradually the price worked up to $1.35 per pound. Further relief from this quarter is problematical, as it is stated that most of the stocks held in China have been sold with no way of replenishing them.

STARCH.

Two of the outstanding features in the market for starch were the frequent changes in prices and the good call which developed for export. Prices fluctuated in sympathy with variations in raw materials and also according as stocks of the finished goods were plentiful or scarce. Net changes in prices for the year were not important. Opening in January prices were quoted at:—$2.09 in bags, $2.20 in barrels, for pearl starch; $2.14 in bags, $2.25 in barrels, for powdered starch; $2.17 in bags, $2.28 in barrels, for cornstarch; $2.59 in bags for finishing starch. These prices are per 100 pounds, in carload lots, f. o. b. New York. At the close of the year prices were:—$2.15 in bags, $2.26 in barrels, for pearl starch; $2.20 in bags, $2.31 in barrels, for powdered starch; $2.33 in bags, $2.44 in barrels, for cornstarch; $2.35 in bags, for finishing starch. Another feature was the report that leading producers were experimenting with starch in the making of explosives, and the importance of this may be seen from the extremely high level to which all materials, used in the explosives' trade have gone.

SUMAC.

Primary markets were firm at the opening of the year as the 1914 crop of sumac in Italy was small and good consuming demand had come from various countries. Ocean freights were high and the shipping situation remained as a market factor throughout the year. In January, $67.50 per ton was quoted for Sicilian sumac, and in March offerings were to be had as low as $60 per ton. With the advent of Italy into the war prices firmed up and there were some fears that the new crop might not be entirely harvested, owing to the scarcity of labor. Some of the boats plying between this country and Italy were taken over for war purposes, and this was another bullish feature. Prices went up to $78 per ton, and at times the spot market was nominal, with stocks depleted. At the close of the year values were easier under freer offerings, and while $65 per ton was quoted on spot, futures were offered at $60@61 per ton. A report from Sicilly gives the following particulars:—

The 1915 sumac crop is above normal. The 1914 crop amounted to nearly 40,000 tons, and the 1915 crop will be one-third larger. The quality of the greater part of the crop is very good, but about one-fourth is inferior in grade, as there was too little rain in certain sections. Prices are a little lower than last year, although the old stock was entirely sold out. This is due to the increase in the crop and also to the uncertainty of exportation. Last year limited quantities were exported to Germany and Austria. By royal decree exportation will be permitted till October 30, but unless another decree is issued exportation will stop. Prices f. o. b. Palermo are now $4.15@4.44 per 220 pounds for natural, and $5.80@6 for ground sumac. There is no prospect of a drop in prices, as the dealers have purchased at a price that will compel them to maintain the present prices.

PRUSSIATES.

The scarcity of muriate of potash and the high levels to which it ascended had an effect on all the potash compounds. Red prussiate of potash was conspicuous by its practical elimination from the market. Early in the year red prussiate was quoted at 40c. per pound, but the history of values for the year shows one advance following another in rapid succession. During the fall stocks of red prussiate were about exhausted and nominal prices of $5 per pound were heard. Yellow prussiate of potash, while not affected to the same extent as red prussiate, yet shows a marked rise in values during the year. In January 15c. per pound was quoted by some sellers. At the close of the year the quotation was 90c.@$1 per pound. This was the high point and was reached by steady rises. A level of 80c. per pound had been reached by the first of July, so that values during the latter half of the year were extremely high. Late in the year the price was largely established by second hands, as manufacturers were reported to be sold out. Prussiate of soda met with unusually good demand as soon as prices for yellow prussiate began to go up, and with a good outlet and producing costs higher, sellers were able to get better prices. Starting the year at 10c. per pound, the price went up slowly during January and February, but late in March a 40c. per pound level was established, and without any recessions to speak of, the market price went ahead until the highest level of the year was reached in December, with 65@70c. per pound as the quotation. Stocks of prussiate of soda were small in the closing months of the year, and the outlook was far from promising for 1916.

ZINC DUST.

Although the spelter market was very high early in the year, prices for zinc dust opened at 9 cents per pound, and this was an easy price. Early in January sales were made at 7 cents per pound, and this was the lowest open quotation of the year. The question of prices later on became somewhat complicated, as sales are said to have been made at 38 cents per pound, while some of the large producers are reported to have sold nothing above 29 cents per pound. This situation arose from the fact that first hands were not offering freely and second hands were making the market. Closing quotations were 35@38 cents per pound, according to quantity and seller. Imported zinc dust was less of a factor in domestic markets, and naturally this tended to strengthen prices by cutting down normal supplies. High prices for spelter also figured prominently, and no relief was in sight at the close of the year either in the way of large supplies or lower prices.

PETROLEUM AND INDUSTRIAL SECURITIES.

The year in review has been marked by a number of important changes in the securities of leading petroleum and industrial companies in the Reporter's field, the general trend being one of strengthening effect. Comparisons are given in the following tables:—

Petroleum Securities.

	Opening.	Closing.
Anglo-American Oil Co.	14½	17½
Atlantic Refining Co.	565	680
Borne-Scrymser Co.	260	280
Buckeye Pipe Line Co.	112	108
California Petroleum	16¼	38
Chesebrough Mfg. Co. Cons.	660	720
Colonial Oil Co.	100	160
Continental Oil Co., Colorado	220	275
Crescent Pipe Line Co.	39	47
Cumberland Pipe Line Co.	50	55
Eureka Pipe Line Co.	225	257
Galena-Signal Oil Co., pfd.	140	135
Galena-Signal Oil Co., com.	165	161
Indiana Pipe Line Co.	96	110
Mexican Petroleum	52½	123
National Transit Co.	36½	31
New York Transit Co.	220	223
Northern Pipe Line Co.	90	103
Ohio Oil Co.	140	187
Pierce Oil Corporation	15½	16¾
Prairie Oil and Gas Co.	462	435
Solar Refining Co.	250	315
Southern Pipe Line Co.	203	205
South Penn Oil Co.	260	380
Southwest Penn Pipe Lines	122	130
Standard Oil Co. of Cal.	308	374
Standard Oil Co. of Indiana	465	545
Standard Oil Co. of Kansas	356	470
Standard Oil Co. of Ky.	247	350
Standard Oil Co. of Nebraska	330	345
Standard Oil Co. of N. J.	397	544
Standard Oil Co. of N. Y.	200	223
Standard Oil Co. of Ohio	425	550
Swan & Finch Co.	160	130
Texas Co.	130	233
Union Tank Line Co.	82	86
Vacuum Oil Co.	198	231
Washington Oil Co.	37	50

Industrial Securities.

	Opening.	Closing.
American Agricultural Chem.	48	72⅝
Preferred	89½	97¾
American Coal Products	83	157½
Preferred	104	115
American Cotton Oil	38½	55⅝
Preferred	91	97½
American Linseed	7¼	24¾
Preferred	26	42½
Corn Products Refining	8¼	20½
Preferred	63	95
General Chemical	160	250
Preferred	107	113
National Lead	43½	66½
Preferred	104	111
Quicksilver Mining	1⅛	4
U. S. Industrial Alcohol	15	120½
Preferred	75	106½
Virginia-Carolina Chemical	15	40¼
Preferred	80	110

Trade Conditions as Viewed by Representative Houses

The Advance Grease and Chemical Company, Jackson, Mich.; A. H. Steele, Sales Manager.

Of course conditions have been somewhat disturbed, but we are very glad indeed to report that during 1915 we made a substantial increase in the amount of our total sales, almost 50 per cent. over the year 1914. We are glad to say that our export department secured a large amount of business from all over the world, and as far as we can ascertain not one of these orders was what might be called a war order. The prospects for 1916 will, of course, depend very much on conditions, but we are very optimistic and believe we will get a good share of the business. Our agents in foreign countries all advise that conditions point to a large increase in business, and we would say it is our opinion that the United States will during 1916 enjoy a period of great prosperity.

Antwerp Naval Stores Company, Savannah, Ga.; A. F. K. Mustin, President.

During the naval stores year now drawing to a close, the industry has been raised from a condition which threatened general disaster to a condition where fair returns are received by the producer and his business placed upon a paying basis.

At one time it was thought possible that the supply would be inadequate, but very favorable weather in October and November caused a generous increase in production. Also the high prices brought to the ports large supplies, particularly of rosin, which had been withheld during the previous two years of unremunerative prices.

There will undoubtedly be a much larger crop next year than was made during the present season, but the new crop cannot be expected to equal an average crop as made before the outbreak of the great war, and the opinion is freely expressed that generally improved business in this country, together with the increased use of naval stores in the manufacture of ammunition, will create a demand for all that is made, even should the war continue throughout the year.

When the war ends heavy buying to replenish Continental European stocks is considered a certainty. The outlook for the industry is therefore good.

The Beckton Chemical Company, Philadelphia, Pa.; J. A. Dowdy.

Regarding lithopone during the year just closed, and the outlook for 1916, we would state that the usual contracting time is in the fall, and toward the end of 1914 many contracts were made for 1915 deliveries at around 4 cents per pound.

During the first few months of 1915 there was so little apprehension of a change that many buyers did not take the quantities they were contracted for. But about April the warring nations began to buy huge quantities of zinc metal in the American market, with the result that spelter went up until it reached a level of about six times its normal price. Subsequently it declined somewhat, but has consistently remained at three or four times its normal value. The advance had been so rapid that lithopone manufacturers were unable to cover their requirements, and consequently delivered their contract commitments during the latter half of 1915 at an actual loss.

Contracts for 1916 were generally made on a basis of about 7 cents around November 1, but immediately thereafter the market began to rise, as it became more and more apparent that the demand exceeded the supply. Paint manufacturers needed increased quantities of lithopone on account of the growing use of flat wall finishes, and the scarcity of zinc oxide led many other industries to adopt lithopone who had not previously used it. There has been some increase in production, but not sufficient to keep pace with the demand. Zinc and all its derivatives have reached such unprecedented prices that it is difficult to predict what may happen, but it does not look as though much relief were in sight short of the termination of the war.

F. W. Brode & Co., Memphis, Tenn.

It has been an old expression that "in times of war stocks and textiles declined, whereas produce and food articles advanced." This has been borne out in the present war; however, prices would be considerably higher than they are now were shipping facilities such that goods could be delivered to the foreign markets. It will take patience on the part of the holders to realize full value for their goods, as necessarily the marketing of them will be slow. Greases of all kinds are high, and at present are in a firm position, although the situation up to date has been very well discounted in the prices now ruling. We look to see a rather nervous market, subject to quick changes from now on. The cream is pretty well taken off the markets, and it is rather risky to trade at the present high levels.

The Fred G. Clark Company, Cleveland, Ohio; W. E. Wall.

Business for the past year, on the whole, was very satisfactory. Like most other businesses, the first six months of 1915 did not start off very well, but the last six months were exceedingly good.

The outlook for 1916 is promising, with the oil from the Russian and Galician fields cut off and the ever increasing amount of automobiles being manufactured, and with all the factories running full blast it looks as though high prices would prevail.

Then, too, as you know, there has been a great decline in the production of crude oil which has sent the price up to the high-water mark. The demand for petroleum products all over the country is very large, and I do not look for any decline this year.

The great war has made chemicals exceedingly scarce. Prices are ranging higher by far than at any time in history. Linseed oil is high and all grades of fish oil and greases of every nature are scarce.

Owing to all these conditions more attention must be given to business than heretofore. I look for a very busy year in our line of business especially.

John Clarke & Co., New York.

This year showed the most remarkable developments in spices, seeds and herbs ever seen in the history of this country. The first half of the year was moderately active, with slow broadening of domestic and export demand, but after July the trade steadily and rapidly expanded under the influence of the great general expansion of business throughout the country, and prices rose to unprecedented heights in many articles.

By the late autumn these conditions were complicated by the unheard of costs of ocean freights and the simultaneous advices received from the Orient reflecting serious crop shortages as well.

Never before had the trade as a whole been affected so sharply by such a combination of factors, and such unsettlement, such inflation, or such wide fluctuations in values.

Nearly all of the produce dealt in by this spice trade is grown in either Africa, Asia or the Isles of the Pacific Ocean, and this means the greatest uncertainty of supply and arrival and deliveries in 1916, more so than in 1915, and taking into account the great delays inseparable from such a condition of ocean freight scarcity, the really heavy expansion in domestic demand, the unduly expanded export needs for South and Central America, the unusual crop shortages in India and Africa, and the speculative feature nurtured by cheap money, 1916 is likely to be a year of acute variations in values, wide and menacing scarcity of needed grades, and such general upheaval and unsettlement as will surpass even the last half of 1915, which will not soon be forgotten by all the users of spices, seeds and herbs in America.

Harrison Bros. & Co., Inc., Philadelphia, Pa.; F. S. Harrison, President.

We feel very optimistic about the future, and believe that there will be a well sustained demand for our products.

Paint products, however, have not advanced in price in any way near the same ratio as the raw materials which enter into their composition. As you are undoubtedly aware, there has been a very decided advance in practically all the materials which enter into the manufacture of paint and very little increase in the selling price of the finished product.

Hirst & Begley Linseed Company, Chicago, Ill.; John W. Hirst.

Our fiscal year, ending July 31, 1915, was an exceptionally good one. The last five months of 1915 seem to have been full of troubles for both the average crusher and oil consumer. Competition has been notoriously keen. The "Blue and the Gray" never fought harder than the East and West have been doing to hold their trade. We have been making history. We have revised the old order of things.

The Produce Exchange in New York, rather than the Board of Trade at Minneapolis or Duluth, has become the center of trading in flaxseed.

We have taken our place alongside of the United Kingdom and the Continent as importers of flaxseed—a position, I am afraid, we will maintain for all time to come.

New York has, therefore, robbed Minneapolis of the distinction of being the manufacturing center of the linseed oil industry. Buffalo and other Lake Erie points are supplying the Central-Western territory up to the Illinois line, and will continue as bidder for this business until the Argentine seed, again without restriction, finds its natural outlet. What a cavity there will be to fill when Europe returns from its barbarous debauch? Should this occur in 1916 a genuine scarcity of seed may develop in this country, otherwise we may yet be able to fill our storehouses from the bountiful crops of the Platte River country. In any event, we are not threatened with a famine in either seed or oil.

Interviews with leading members of the paint manufacturing industry of the Chicago territory convince us that their requirements for the early part of 1916 will be far below normal, by reason of their inability to secure certain pigments at prices and in quantities that will enable them to carry their customary volume of manufactured stock.

We, however, look for improved demand from the industrials and railroads, though high prices may deprive us of the full benefit of the prosperity enjoyed by them.

W. A. Hover & Co., Denver, Colo.

The business conditions for 1915 might best be expressed by the somewhat contradictory statement that business was active, but not good. Numerous and frequent orders of small amounts were characteristic of the business for 1915. There was little or no disposition to anticipate wants, buying for immediate consumption only. The closing months of the year showed considerable increase in volume. The disturbed conditions of the market very much restricted the purchasing of many heretofore staple products. Not only was the use of many articles very greatly curtailed, but the use of some items was practically discontinued.

It is hard to say what 1916 will bring forth. For the first month the showing has been very favorable compared with the same month last year. Restricted and hand-to-mouth buying, however, still obtains. Apparently, however, the bottom was reached last year, and any change that takes place will be for the better.

Industrial Chemical Company, New York; J. Wrench, Secretary and Treasurer.

The expansion of business during the past year has been very encouraging to us, having due regard to the special character of certain of our products.

Present developments are strongly indicative of a considerably increased demand for our goods, and we are confidently looking forward to a fuller measure of prosperity during 1916.

Jefferson Distilling and Denaturing Company, New Orleans; Charles Bacharach, President.

We are pleased to inform you that we enjoyed a very prosperous year during 1915, our business having been quite up to the standard. The outlook for 1916 is indeed very encouraging, and there is no doubt that all manufacturers in this country should be greatly benefited now that we have had to take the initiative and manufacture goods in this country to replace goods formerly imported from abroad.

Eli Lilly & Co., Indianapolis; J. K. Lilly.

In common with all other branches of the drug trade manufacturing pharmacy had its difficulties to combat with during 1915. Constantly increasing costs with restriction of supplies increased very greatly the burdens of this difficult line. Prospects in these particulars seem even darker for 1916.

As to volume of business, 1915 was very satisfactory. There seemed, especially in the latter months of the year, to be a general quickening of business in all sections. This has been carried into 1916 and there is reason to believe that this continuing wave of prosperity will continue throughout the year. The conditions in our own country, even aside from war orders, were certainly never more inviting, and of course this flood of European demand makes super-prosperity in some sections.

Altogether we are anticipating a satisfactory year in spite of abnormal conditions, but we feel that the safe business man will, especially in the drug line, prepare himself for the day of falling markets. This period will require constant watchfulness and best management to keep up a reasonable rate of profit. With the return of normal conditions, no one should have any concern but what this great country of ours will go forward in its wonderful progress.

John Lucas & Co., Philadelphia; Ernest T. Trigg, Vice-President and General Manager.

The year just closed was perhaps the most unusual one which the paint trade has ever known. Taken altogether, the volume of business was, I believe, ahead of the previous year.

We are looking forward to plenty of volume during the coming year, the most serious thing in the outlook being the question of ability to get certain important raw materials. This can only be developed as the year progresses.

Parke, Davis & Co., Detroit, Mich.; Frank G. Ryan, President.

During the first half of the year 1915 business conditions in pharmaceutical lines were not very encouraging, but soon after the middle of the year a very active demand began and continued in greatly increased volume to the end of the year.

Of course the business has been done under very abnormal conditions, the market price of crude drugs having increased enormously. This condition still prevails, and it is quite impossible to predict a limit of price in any line. The demand for manufactured pharmaceuticals is extremely active and the amount of business in sight will only be limited by the ability of the manufacturers to obtain sufficient material to supply their needs.

The above conditions have, of course, been brought about by the war in Europe, and the business for 1916 will undoubtedly be controlled largely by such changes as may take place in the conflict. It is very certain that should the war continue throughout the year there will be great difficulty in supplying products of foreign origin in sufficient quantities to meet the very large demand.

Peter - Neat - Richardson Company, Inc., Louisville, Ky.; M. Peter.

The business of 1915, in this section at least, has been remarkable. The year was full of opportunities for speculation, almost unprecedented, and has been met in a most splendid manner. The manufacturers of this country have, almost without exception, been supplying to their regular customers articles of their make at a much less price than they could have obtained for their whole stock at the seaboard in cash. This has never been stated in words by any of them, neither has the trade in this section had any conference upon the situation, but by universal consent the same principle has been applied by the jobber. As a consequence, goods have been sold through regular channels persistently throughout the year at much less price than any holder could have obtained for his whole stock at one time.

To our minds, this is an indication of right thinking and sound judgment on the part of the drug trade, and so far as we know it is without precedent.

The future of the business seems to us to be safe in the hands of this kind of people.

Pittsburgh Plate Glass Company, Pittsburgh, Pa.; Charles W. Brown, Vice-President.

During the first part of 1915, owing to an overproduction and general curtailment in building operations, prices for plate glass were the lowest on record. Two plate glass manufacturing companies ceased operations during 1915.

Since September last there has been a continuous improvement in the plate glass business, a greatly increased demand and a steadily advancing market, and we look forward to the year 1916 as being the most prosperous in the history of the industry. This improvement is due principally to the very large demand for plate glass for automobiles and for mirrors, an important export demand has developed, and building permits materially increased.

The window glass factories are operating to their full capacity, which is due to a large export demand and to the improved business conditions in the United States. Stocks of plate and window glass all over the world have been greatly reduced during 1915, and the available supplies of plate glass in Belgium, and to some extent in England, have been exhausted. Several foreign countries have improved their financial condition, and have established credits in this country. Hence, in 1916 the export demand is an important factor in the plate and window glass industry in the United States.

The Prince Manufacturing Company, New York; W. J. Colwell, Secretary.

General business conditions a year ago gave small promise of profit in metallic paints during 1915. The first months were very lean ones, and our sales were much below normal; then came a change for the better, and summer and fall orders from the paint grinders raised our year's output above that of 1914. Railroad buying has been the principal factor, because freight car and bridge construction was the smallest for many years, and little repainting was done; there was little use for Prince's mineral in oil. Recent large orders for freight cars and structural steel mean a good demand for railroad paint, and the general increase of building construction is also encouraging.

The Roessler & Hasslacher Chemical Company, New York; Wm. A. Hamann, Treasurer.

A full record of the year 1915 would make very interesting reading so far as our line of chemicals is concerned; it is, however, known to the trade at large and hardly needs a historical repetition. Conditions were abnormal, and the year can correctly be termed as a "freak" which cannot repeat itself. With the net results in actual money profits quite exceptional, it cannot be looked back upon as a year of healthy development and little satisfaction can be drawn from it except for the monetary consideration. There are only a few chemicals in which we have been able to satisfy the requirements of our customers. We have, however, we believe, done the best possible under the circumstances. Quite a number of chemicals are now entirely out of the market, and in some instances other chemicals have been found to replace them. In this respect the coming year will relieve us from some of the many tribulations and troubles of the year that is past.

The general tendency so far appears to be unchanged, and it will remain unchanged until the exceptional demand in many products has been met by an exceptional production, or the prevailing conditions come to a sudden change. We do not, nor can we prophesy, when a change to more normal conditions will take place.

Schieffelin & Co., New York; William L. Brower, Vice-President.

We believe the drug business generally throughout the country has had a successful year during 1915. In our own case our business has experienced a considerable increase, which is due not only to domestic consumption, but to export transactions.

As to prices, many articles in the drug and chemical business have advanced rapidly owing to the fact that they were formerly imported, and the hostilities in Europe interfering with the supplies has caused this advance, and we think this will continue until American manufacturers have more nearly adjusted themselves to the situation. We regard the present condition of American commerce in an optimistic light, and believe that it is destined to increase greatly in volume. Collections throughout the year have been good.

Shoemaker & Busch, Philadelphia, Pa.; Clayton F. Shoemaker.

The year just passed will no doubt stand out for many years to come as most remarkable from every stand-

point. Whatever our individual associations or opinions may be, there is no doubt that the minds and hearts of the people of this land have been largely occupied by the tremendous struggle now proceeding on the battlefields of Europe.

From a strictly business standpoint, the first eight months of the year showed a very moderate amount of business, I think, for the average wholesale druggist. During the last three months, however, there seems to have been a considerable increase, and this was intensified in this city by a violent epidemic of grippe, causing the wholesale drug houses here to be pretty busy. The year ought to show all wholesale druggists a much better profit than usual, because of the opportunities afforded in a speculative way, even to the most conservative houses.

As I look forward to the future, it seems to me that the present year ought likewise to be a good one from a business standpoint. The percentage of unoccupied laborers is smaller than for many years. Most of those now working are receiving unusually high wages, and their spending power is thus largely increased.

It must be remembered, however, that some day the war will stop, the prices which are now so largely inflated, will as suddenly collapse, and there will thus be an element of considerable danger in the situation. We must be prepared when the time comes for radical changes in price, in volume and in competition, and we should not allow ourselves to be over confident, or our business over extended.

The Solvay Process Company, Syracuse, N. Y.; F. R. Hazard, President.

The first part of the year 1915 did not show much promise of activity, in fact, business was decidedly subnormal. This condition showed some evidence of improvement as early as the latter part of March, and from that time on the change was very rapid. While at the beginning of the year manufactured stocks on hand were fairly large, these were depleted under the demand, and gradually disappeared in spite of very considerable increase in production. During the latter part of 1915 demand was very greatly in excess of supply, leading to abnormally high prices. A considerable portion of this unusual demand was for export business, but the major part was for domestic business, which showed an expansion varying in different lines of product from 40 per cent. to 80 per cent.

The year 1916 opened with unabated demand, and finds both manufacturers and consumers without available stocks on hand. Inquiries for export are large and frequent. It is practically impossible to fill these, as the domestic requirements absorb all available product. Judging from present indications and the condition of contracts already placed, the results of 1916 should be satisfactory.

Eugene Suter, New York.

The market for potash salts has undoubtedly been one of the most interesting of all chemical markets for the year 1915. The rise of the price of muriate of potash from $35 and $40 prior to the European war to about $500 at the end of 1915 demonstrates to what extent we depend upon Germany for the all-important potash salts. The stock of muriate of potash in the country must have been greatly in excess of 10,000 tons at the outbreak of the war, but, even though it is fair to assume that the stock would be completely exhausted by this time if the German Potash Syndicate had not managed toward the end of the summer of 1914 up to the beginning of 1915 to still effect some heavy shipments to this country. Since February 1, 1915, no fresh supply of potash salts from Germany has been received at all, and what few shipments of German salts were since that time made to the United States from other countries — Central America, South America and the Far East, etc.—have only been a "drop in the bucket." In proportion as the market prices for muriate of potash and sulphate of potash advanced, the visible stock in the country for a while seemed to increase, that is, the happy holders thereof no longer made a secret of it, but were induced to offer the goods for sale.

It is estimated that the present supply of muriate in this country may still amount to about 3,000 to 4,000 tons, although it is not certain that all of it is for sale. Should the war last another year, it is fair to assume that there would not be a pound of either muriate or sulphate of potash left in the United States, and lack of any supply of potash salts might have most embarrassing consequences not only for the chemical industry, but also for the large agricultural interests, and especially the cotton belt in this country. The forced decrease in the application of potash fertilizers in the agricultural sections for the past two years may already make itself felt very seriously in the next crop. It is not believed that the new sources of supply of potash that have been struck or that are alleged to have been struck in this country will offer any great relief. Yet it is anticipated that sooner or later American enterprise, coupled with the rapid progress of chemistry, is bound to lead to the successful exploitation of the large potash deposits that appear in the United States in the form of felspar, alunite and orthoclase. The supply derived from kelp will probably never reach serious proportions.

The H. F. Taintor Manufacturing Company, New York; Starr Taintor, Vice-President.

The whiting business for the year just closed has been good. The activity in the last four months of the year, however, largely contributed to the satisfactory total result, as the business until September 1 was below normal. Whiting manufacturers are dependent upon the importation of chalk to conduct their business, and for this reason it is difficult to predict as to the business for 1916. Up to this time we understand that most of the manufacturers have been able to obtain chalk in moderate quantities, but the high ocean freights and the difficulty in obtaining labor in Europe make the cost much higher.

Wilcken Martin Wilcken Company, New York; L. Martin, Vice-President.

While our business fell off heavily during the first six months of 1915, yet it picked up rapidly during the last six months, so much so that the year will be a little over the normal. The future for 1916 is practically assured by reason of the fact of the outside demand for lampblacks which business was formerly taken care of by the European manufacturers. There has also been a serious shortage of raw material, and this situation has brought about higher prices.

Isaac Winkler & Bro., Cincinnati, O.

While the year 1915 did not open up very auspiciously, nevertheless the spurt during the last few months made up for the loss in business during the earlier portion of the year. However, we look for a good volume of business over the whole of 1916.

Woolner & Co., Peoria, Ill.; Adolph Woolner, General Manager.

The past year closed very favorably for all products that we manufacture, and the bookings for 1916 are far beyond expectations. We have added several new lines, which were brought on by the war conditions, and which will add materially to the production of chemicals in this country, and we see nothing but very favorable prospects for 1916.

Wm. Zinsser & Co., New York; W. H. Zinsser, President.

We have been so busy acknowledging orders, letters and wires from all over the country that we have not had time to tell you, before today, how enthusiastic we are about the outlook for 1916. We remember predicting that last year was going to be a very good one. We were afraid, when the first few months had passed, that we would be proven false prophets. Business was so good, however, toward the last half of the year that 1915 closed as the best year we ever had.

The way this year has begun, coupled with future sales we have made up to the first of July, we are sure of our ground and predict that 1916 will be one of the finest years ever seen in American business. All lines, not only those temporarily stimulated by the war, are enthusiastic about present business and future prospects.

Necrological Record for 1915.

The necrological record for last year comprises the names of fifty men who had been associated with the trades represented by the Reporter. A short sketch of the life and business career of each was published in the Reporter. In the following summary are given the names, dates of death, age and issues of the Reporter in which the respective obituary notices appeared:—

	Age.	Date of publication, Jan.
Major James B. Horner, Dec. 27	76	4
Edwin H. Hammer, Dec. 28	57	4
James W. Phyfe, Dec. 25	70	4
Charles M. Hall, Dec. 27	50	4
Theodore Armstrong, Jan. 5	71	11
James C. Peabody, Jan. 1	67	11
James McDonald, Jan. 13	75	18
Oliver S. Orrick, Jan. 1	..	18
Russell J. Straight, Jan. 25	..	25
		Feb.
Ashbel N. Merrell, Jan. 29	51	8
Joseph A. Velsor, Feb. 15	81	22
Alfred H. Kennedy, Feb. 13	65	22
		Mar.
George D. Whitney, Feb. 24	..	1
George M. Vail, March 5	60	8
George W. Evans, March 14	49	22
Sydney B. Drake, March 17	65	22
		Apr.
Fred M. Fisk, April 10	..	19
Anthony Graef, April 23	56	26
		May
Frederick W. R. Eschmann, April 26	..	3
George Massey, April 29	71	3
Thomas J. Watson, May 5	73	10
Paul Crompton, May 7	44	24
John D. Lewis, May 20	69	31
		June
Edward L. Molineaux, June 10	82	14
Albert Plaut, June 17	58	21
Walter T. Munn, June 25	46	25
		July
F. J. Vandegrift, July 3	69	12
George Heard, July 17	64	26
		Aug.
Dr. Charles A. Crampton, July 20	57	2
William S. Porter, Aug. 9	49	16
John S. Eakins, Aug. 16	60	23
Alfred Renskorf, Aug. 19	53	23
Daniel Bailey, Aug. 24	81	30
Thomas Anderson, Sr., Aug. 20	..	30
Sol Isaacs, Aug. 25	75	30
		Sept.
William Graver, Aug. 25	73	6
William C. Warner, Sept. 16	..	27
Lowell M. Palmer, Sept. 30	71	27
Ray E. Dickenson, Sept. 29	38	29
		Oct.
Austin M. Purves, Oct. 12	61	18
Alanson S. Gillespie, Oct. 11	..	18
		Nov.
Charles W. Hand, Oct. 28	59	1
Charles A. Sterne, Nov. 1	47	8
Grant Good, Nov. 10	78	15
William Launer, Nov. 7	59	15
Charles H. Kiessig, Nov. 9	63	15
Philip M. Shannon, Nov. 22	72	29
		Dec.
William E. Bemis, Nov. 29	51	6
William M. Massey	74	6
Frank R. Fuller, Dec. 6	52	20

Imports Into the United States

FISCAL YEARS ENDING JUNE 30.

Abrasives, Corundum Grains Manufactured, Ground, Etc.

	Pounds.	Dollars.
1911	1,594,600	80,866
1912	657,034	39,931
1913	1,855,400	87,187
1914	1,113,961	61,026
1915	832,900	39,938

Abrasives, Crude, Artificial.

		Dollars.
1911	.....	49,648
1912	.....	88,550
1913	.....	190,057
1914	.....	235,465
1915	.....	255,474

Abrasives, Emery Grains Manufactured, Ground, Etc.

	Pounds.	Dollars.
1911	811,253	36,620
1912	742,300	35,048
1913	886,315	36,908
1914	846,191	33,949
1915	629,902	25,040

Abrasives, Emery Wheels, Files, Paper, Etc.

		Dollars.
1911	.....	15,224
1912	.....	15,700
1913	.....	15,006
1914	.....	20,506
1915	.....	17,342

Abrasives, Pumice Stone, Unmanufactured.

	Tons.	Dollars.
1911	5,783	58,765
1912	5,943	55,019
1913	5,558	44,474
1914	7,065	57,427
1915	6,060	47,469

Abrasives, Pumice Stone, Wholly or Partly Manufactured.

	Pounds.	Dollars.
1911	7,838,607	38,985
1912	6,289,480	29,240
1913	3,845,326	17,417
1914	6,484,875	28,286
1915	6,013,747	27,152

Acetone.

	Pounds.	Dollars.
1914	2,760	307
1915	235,917	21,105

Not stated prior to 1914.

Acetanilid.

	Pounds.	Dollars.
1914	1,090	164
1915	800	389

Not stated prior to 1914.

Acetphenetidin.

	Pounds.	Dollars.
1915	39,990	27,356

Not stated prior to 1915.

Acids, Acetic or Pyroligneous.

	Pounds.	Dollars.
1911	78,886	6,172
1912	78,331	5,882
1913	39,648	3,036
1914	27,750	1,952
1915	312,850	16,419

Acids, Acetylsalicylic.

	Pounds.	Dollars.
1914	22,841	11,873
1915	112,692	53,792

Not stated prior to 1914.

Acid, Acetic Anhydrid.

	Pounds.	Dollars.
1911	1,170,485	218,676
1912	254,977	44,069
1913	309,643	51,632
1914	150,892	23,240
1915	3,652	1,019

Acid, Arsenic or Arsenious.

	Pounds.	Dollars.
1911	3,175,861	95,422
1912	4,735,200	136,378
1913	5,164,768	203,525
1914	3,034,351	110,179
1915	2,789,531	106,530

Acid, Benzoic.

	Pounds.	Dollars.
1911	502,878	111,345
1912	470,005	95,740
1913	863,015	133,887
1914	278,896	51,701
1915	132,666	25,442

Acid, Boracic.

	Pounds.	Dollars.
1911	343,994	12,733
1912	276,496	10,540
1913	362,400	13,897
1914	527,201	22,390
1915	401,684	18,002

Acid, Carbolic.

	Pounds.	Dollars.
1911	4,371,014	265,780
1912	5,686,704	521,457
1913	8,345,631	688,771
1914	8,393,216	531,535
1915	3,106,445	179,685

Acid, Chromic.

	Pounds.	Dollars.
1911	8,643	1,456
1912	7,599	1,407
1913	8,522	1,682
1914	7,778	1,220
1915	6,505	1,394

Acid, Citric.

	Pounds.	Dollars.
1911	97,847	28,717
1912	67,332	20,275
1913	8,677	2,916
1914	652,210	204,347
1915	722,434	447,131

Acid, Fluoric and Hydrofluoric.

	Pounds.	Dollars.
1911	100	6
1912	1,117	57
1913	12	5
1914	305	22
1915	150	11

Acid, Formic.

	Pounds.	Dollars.
1911	864,345	63,171
1912	678,524	50,674
1913	502,685	22,414
1914	1,119,745	48,826
1915	534,895	30,641

Acid, Gallic.

	Pounds.	Dollars.
1911	45,904	13,861
1912	28,917	9,701
1913	51,326	17,086
1914	61,635	20,429
1915	41,558	14,992

Acid, Glycerophosphoric, Salts and Compounds.

	Pounds.	Dollars.
1914	24,780	23,066
1915	15,933	17,678

Not stated prior to 1914.

Acid, Hydrochloric or Muriatic.

	Pounds.	Dollars.
1911	.....	.....
1912	.....	.....
1913	440	14
1914	254,480	1,450
1915	3,532,076	20,884

Acid, Lactic.

	Pounds.	Dollars.
1911	201,371	16,470
1912	335,335	25,267
1913	158,754	19,029
1914	276,237	30,423
1915	143,291	26,787

Acid, Nitric.

	Pounds.	Dollars.
1911	.....	.....
1912	204	13
1913	100	8
1914	.....	.....
1915	356,558	17,776

Acid, Oxalic.

	Pounds.	Dollars.
1911	7,053,899	363,353
1912	7,077,462	351,449
1913	8,046,380	402,960
1914	8,780,857	433,783
1915	4,496,679	262,422

Acid, Phosphoric.

	Pounds.	Dollars.
1911	465,907	53,775
1912	454,962	57,635
1913	504,383	76,907
1914	528,827	63,222
1915	265,196	39,120

Acid, Phthalic.

	Pounds.	Dollars.
1911	52,474	14,252
1912	67,362	16,787
1913	75,605	20,511
1914	63,574	15,597
1915	17,925	4,498

Acid, Picric or Nitro Picric.

	Pounds.	Dollars.
1911	47,700	8,277
1912	50,061	9,213
1913	85,068	18,339
1914	.....	.....
1915	20,091	4,278

Acid, Pyrogallic.

	Pounds.	Dollars.
1911	22,145	14,188
1912	28,961	22,804
1913	9,512	9,278
1914	23,615	20,496
1915	10,564	9,514

Acid, Salicylic.

	Pounds.	Dollars.
1911	32,876	5,297
1912	28,769	5,840
1913	31,844	6,500
1914	18,821	4,425
1915	82,617	24,408

Acid, Silicic.

	Pounds.	Dollars.
1911	11,689	242
1912	8,897	507
1913	121,344	6,486
1914	.....	.....
1915	3,086	586

Acid, Stearic or Stearin.

	Pounds.	Dollars.
1911	36,610	3,451
1912	67,122	6,762
1913	119,619	12,160
1914	100,088	9,593
1915	32,795	3,465

Acid, Sulphuric, or Oil of Vitriol.

	Pounds.	Dollars.
1911	38,079	526
1912	48,846	639
1913	34,624	512
1914	6,725,999	40,559
1915	7,382,139	44,608

Acid, Tannic or Tannin.

	Pounds.	Dollars.
1911	5,755	2,250
1912	1,010	484
1913	1,540	768
1914	12,892	4,326
1915	49,493	17,047

Acid, Tartaric.

	Pounds.	Dollars.
1911	331,538	72,204
1912	105,311	24,116
1913	78,942	15,747
1914	848,575	203,850
1915	820,105	273,880

Acid, Valerianic.

	Pounds.	Dollars.
1911	1,633	1,088
1912	1,041	891
1913	1,019	860
1914	1,161	750
1915	2,163	1,774

Acids, All Other Not Specially Provided For.

		Dollars.
1911	.....	59,079
1912	.....	53,455
1913	.....	86,539
1914	.....	94,078
1915	.....	73,848

Aconite.

	Pounds.	Dollars.
1911	7,959	613
1912	21,385	1,721
1913	12,946	1,065
1914	4,267	321
1915	8,821	962

Acorns, Raw, but Unground.

	Pounds.	Dollars.
1911	2,000	100
1912	.....	.....
1913	7,165	216
1914	3,613	208
1915	4,395	198

Agar-Agar.

	Pounds.	Dollars.
1914	189,232	54,319
1915	344,119	92,809

Not stated prior to 1914.

Albumen, Blood.

	Pounds.	Dollars.
1911	116,439	19,973
1912	166,482	25,200
1913	177,795	27,847
1914	90,380	13,239

Not stated after 1914.

Albumen, Egg.

	Pounds.	Dollars.
1911	903,504	349,960
1912	1,040,750	329,732
1913	1,246,744	406,594
1914	1,574,271	487,905

Stated Separately After 1914; See Following Classes.

ALBUMEN, EGG, DRIED.

	Pounds.	Dollars.
1915	1,269,398	402,996

ALBUMEN, EGG, FROZEN OR LIQUID.

	Pounds.	Dollars.
1915	691,081	92,307

Albumen, Not Otherwise Provided For.

	Pounds.	Dollars.
1911	4,054	442
1912	5,959	1,429
1913	15,831	3,421
1914	388,589	58,175
1915	258,057	48,941

Alcohol, Grain.

	Proof gallons.	Dollars.
1911	119,553	20,522
1912	144,838	22,211
1913	135,250	22,780
1914	109,830	19,305
1915	40,532	6,707

Alcohol, Methyl or Wood.

	Gallons.	Dollars.
1911	366	319
1912	157	185
1913	362	387
1914	109,022	42,598
1915	39,485	11,880

Alizarin, Natural or Artificial, and Dyes Derived Therefrom.

	Pounds.	Dollars.
1911	3,188,037	709,909
1912	5,463,096	1,385,529
1913	8,219,087	1,824,973
1914	806,764	246,196

Stated as following class after Oct. 3, 1913.

Alizarin, Natural or Synthetic and Dyes Derived from Alizarin, Anthracen and Carbozol.

	Pounds.	Dollars.
1914	1,828,074	599,648
1915	5,902,878	1,586,367

Alum, Alum Cake, Patent Alum, Sulphate of Alumina and Aluminous Cake.

	Pounds.	Dollars.
1911	1,237,249	11,908
1912	3,037,199	29,194
1913	4,129,699	39,944
1914	4,119,481	47,759
1915	3,904,561	41,166

Alumina, Hydrate of, or Refined Bauxite.

	Pounds.	Dollars.
1911	1,908,908	32,554
1912	2,307,849	38,294
1913	2,252,156	37,812
1914	1,639,027	26,328
1915	202,968	3,680

Aluminum.

	100 Lbs.	Dollars.
1911	6,181	877
1912	3,700	1,891
1913	3,531	1,811
1914	1,385	141
1915	15,249	1,901

Amber, Manufactures of.

		Dollars.
1911	.....	3,833
1912	.....	2,569
1913	.....	7,292
1914	.....	9,332
1915	.....	4,516

Ambergris.

	Ounces.	Dollars.
1911	2,721	22,518
1912	272	4,624
1913	608	10,964
1914	32	695
1915	1	87

Ammonia, Carbonate of.

	Pounds.	Dollars.
1911	332,877	21,779
1912	344,143	21,551
1913	258,376	16,173
1914	391,981	25,195
1915	784,821	49,122

Ammonia, Liquid Anhydrous.

	Pounds.	Dollars.
1911	.....	.....
1912	20	2
1913	.....	.....
1914	.....	.....
1915	397	35

Ammonia, Muriate of, or Sal Ammoniac.

	Pounds.	Dollars.
1911	13,951,116	668,025
1912	12,696,437	589,227
1913	10,387,148	504,330
1914	9,254,559	470,666
1915	4,788,325	241,713

Ammonia, Nitrate of.

	Tons.	Dollars.
1914	1,383	132,849
1915	1,637	193,907

Not stated prior to 1914.

Ammonia, Perchlorate of.

	Pounds.	Dollars.
1914	70,253	6,337
1915	72,576	6,515

Not stated prior to 1914.

Ammonia, Phosphate of.

	Pounds.	Dollars.
1911	68,039	4,640
1912	13,804	915
1913	7,433	493
1914	205,764	13,462
1915	71,782	5,394

Ammonia, Sulphate of.

	Pounds.	Dollars.
1911	207,486,060	5,301,333
1912	148,208,348	4,143,443
1913	122,224,780	3,660,064
1914	167,194,996	4,900,058
1915	128,833,600	3,215,139

Aniline Salts.

	Pounds.	Dollars.
1911	5,133,725	450,106
1912	4,831,075	386,656
1913	4,976,108	371,198
1914	3,083,467	222,728
1915	895,439	130,280

Annatto, Roucou, Rocou or Orleans, and All Extracts of.

	Pounds.	Dollars.
1911	632,742	30,445
1912	936,163	34,921
1913	465,024	19,991
1914	507,250	25,341
1915	809,903	53,174

Anthracine and Anthracene Oil.

		Dollars.
1914	.....	32,175
1915	.....	49,949

Not stated prior to 1914.

Antimony Oxide, Salts and Compounds of.

	Pounds.	Dollars.
1911	942,616	50,371
1912	1,079,268	46,671
1913	1,819,323	97,447
1914	2,623,084	248,164
1915	1,797,265	219,605

Antipyrine.

	Pounds.	Dollars.
1914	7,686	11,008
1915	606	1,085

Not stated prior to 1914.

Antitoxins, Vaccine Virus, and All Other Animal Serums Used for Therapeutic Purposes.

		Dollars.
1911	.....	11,398
1912	.....	7,525
1913	.....	5,032
1914	.....	19,019
1915	.....	12,826

Not stated prior to 1914.

Apatite.

	Tons.	Dollars.
1911	.....	.....
1912	50	1,140
1913	2,930	22,535
1914	92	796
1915	.....	.....

Argols or Crude Tartar, or Wine Lees, Crude.

	Pounds.	Dollars.
1911	29,269,977	2,940,188
1912	23,648,848	2,226,439
1913	29,476,172	2,621,491
1914	5,712,667	545,105

Class dropped under 1913 tariff; see below.

Argols, Partly Refined, or Tartars and Lees Crystals.

	Pounds.	Dollars.
1911	18,547	3,130
1912	14,502	1,875
1913	5,498	763
1914	.....	.....

Class dropped under 1913 tariff; see below.

Argols, or Crude Tartar or Wine Lees Crude or Partly Refined.

	Pounds.	Dollars.
1914	23,810,048	2,654,618
1915	28,814,957	3,122,326

Arrowroot, Unmanufactured.

	Pounds.	Dollars.
1911	12,756	514
1912	95,714	5,512
1913	11,327	688
1914	8,615	316
1915	134	5

Arsenic, and Sulphide of, or Arpiment.

	Pounds.	Dollars.
1911	6,916,069	203,766
1912	4,061,065	128,413
1913	8,475,592	354,284
1914	4,148,928	169,614
1915	3,981,661	178,756

Articles Manufactured in the United States Returned — Quicksilver Flasks or Bottles, and Drums Used in Exporting Acids.

		Dollars.
1911	.....	167,582
1912	.....	205,931
1913	.....	259,123
1914	.....	280,620
1915	.....	180,676

Artists' Colors, in Tubes, Pans, Cakes, Etc.

		Dollars.
1911	.....	80,130
1912	.....	104,940
1913	.....	136,894
1914	.....	211,365
1915	.....	186,728

Ashes, Wood and Lye of, and Beet Root Ashes.

		Dollars.
1911	.....	50,973
1912	.....	40,212
1913	.....	36,493
1914	.....	27,884
1915	.....	48,522

Asphaltum and Bitumen, Crude, Except Limestone Rock Asphalt.

	Tons.	Dollars.
1911	146,509	602,213
1912	154,508	587,252
1913	188,725	750,685
1914	45,876	171,981
1915	79,561	465,717

Aspirin.

	Pounds.	Dollars.
1914	25	25
1915	41	37

Not stated prior to 1914.

Balsam Copaiba, Crude.

	Pounds.	Dollars.
1911	191,154	56,918
1912	159,172	50,969
1913	206,447	66,361
1914	245,435	71,339
1915	273,616	59,921

Balsam Fir, or Canada, Crude.

	Pounds.	Dollars.
1911	15,788	7,128
1912	3,741	1,741
1913	3,691	1,827
1914	13,864	12,566
1915	18,610	14,636

Balsam Peru, Crude.

	Pounds.	Dollars.
1911	37,910	47,840
1912	47,862	63,800
1913	48,996	61,702
1914	25,021	29,701
1915	27,506	32,735

Balsam Storax, or Styrax, Crude.

	Pounds.	Dollars.
1911	26,544	3,309
1912	19,139	2,325
1913	35,861	5,223
1914	5,007	798
1915	11,445	1,550

Balsam Tolu, Crude.

	Pounds.	Dollars.
1911	21,802	3,328
1912	30,970	7,256
1913	57,277	29,552
1914	42,138	19,063
1915	39,750	13,993

Balsam, All Other Crude.

	Pounds.	Dollars.
1911	24,200	12,147
1912	30,391	12,885
1913	46,000	12,149
1914	33,311	12,410
1915	5,999	4,214

Balsams, Advanced in Value by Any Process, Copaiba.

	Pounds.	Dollars.
1914	.....	.....
1915	74	18

Not stated prior to 1914.

Balsams, Advanced in Value by Any Process, Fir or Canada.

	Pounds.	Dollars.
1914	.....	.....
1915	205	154

Not stated prior to 1914.

Balsams, Advanced in Value by Any Process, Tolu.

	Pounds.	Dollars.
1914	1,270	622
1915	.....	.....

Not stated prior to 1914.

Balsams, Advanced in Value by Any Process, All Other.

	Pounds.	Dollars.
1914	.....	.....
1915	15	3

Not stated prior to 1914.

Barium, Carbonate of, Precipitated.

	Pounds.	Dollars.
1912	946,971	7,376
1913	22,182,517	20,145
1914	4,995,451	46,425
1915	344,588	7,864

Not stated prior to 1912.

Barium, Chloride of.

	Pounds.	Dollars.
1911	2,742,486	29,771
1912	2,834,980	27,766
1913	2,928,159	28,541
1914	6,110,386	64,563
1915	4,686,029	60,532

Barium, Dioxide (Binoxide) of.

	Pounds.	Dollars.
1911	4,896,563	347,129
1912	3,715,823	255,053
1913	3,507,568	215,590
1914	6,085,798	329,139
1915	4,084,144	317,262

Bark, Cinchona or Other from Which Quinine May Be Extracted.

	Pounds.	Dollars.
1911	4,136,354	341,896
1912	2,935,350	239,182
1913	3,329,973	354,593
1914	3,654,968	464,411
1915	3,951,196	561,802

Bark, Hemlock.

	Cords.	Dollars.
1911	10,536	65,957
1912	5,633	34,427
1913	5,502	31,965
1914	4,483	25,655
1915	3,672	19,967

Baryta, Sulphate of, or Barytes, Unmanufactured.

	Tons.	Dollars.
1911	18,394	45,062
1912	20,988	40,941
1913	28,358	63,345
1914	32,550	63,270
1915	9,616	21,087

Baryta, Sulphate of, or Barytes, Manufactured.

	Tons.	Dollars.
1911	3,263	26,462
1912	2,689	21,642
1913	4,594	36,819
1914	5,379	42,627
1915	1,755	14,997

Bauxite, Crude.

	Tons.	Dollars.
1911	32,308	127,713
1912	29,198	107,615
1913	30,863	119,848
1914	23,576	86,871
1915	12,870	50,557

Bay Rum, or Bay Water.

	Proof gallons.	Dollars.
1911	675	656
1912	376	396
1913	685	707
1914	483	620
1915	503	673

Beeswax.

	Pounds.	Dollars.
1911	904,999	270,119
1912	1,077,117	328,752
1913	828,287	254,704
1914	1,412,695	477,745
1915	1,565,338	440,047

Bismuth.

	Pounds.	Dollars.
1911	178,297	321,360
1912	166,980	305,282
1913	151,090	257,176
1914	133,190	241,448
1915	34,237	72,587

Blanco Polish.

		Dollars.
1911	.....	14,948
1912	.....	34,912
1913	.....	21,854
1914	.....	17,997
1915	.....	17,743

Blanc Fixe, or Artificial Sulphate of Barytes, and Satin White and Artificial Sulphate of Lime.

	Pounds.	Dollars.
1911	6,332,699	73,278
1912	5,702,262	70,925
1913	4,868,726	58,499
1914	4,752,474	60,641
1915	2,233,369	25,748

Bleacher's Blue.

		Dollars.
1913	.....	8,300
1914	.....	4,143
1915	.....	14,125

Not stated prior to 1913.

Bloodchar.

	Pounds.	Dollars.
1911	661	347
1912	.....	.....
1913	2,954	333
1914	26,674	1,780
1915	14,167	1,196

Blood, Dried.

		Dollars.
1911	.....	448,739
1912	.....	220,720
1913	.....	86,451
1914	.....	391,947
1915	.....	227,648

Blue, Berlin, Prussian, Chinese, Etc., in Pulp, Dry or Ground, in or Mixed with Oil or Water.

	Pounds.	Dollars.
1911	189,681	34,804
1912	137,999	24,906
1913	193,336	34,476
1914	275,174	50,149
1915	547,299	112,904

Bone Black, Lamp Black, Etc.

		Dollars.
1911	.....	26,064
1912	.....	22,544
1913	.....	31,056
1914	.....	27,604
1915	.....	24,459

Bone Char, or Bone Black, Not Suitable for Use as Pigment.

		Dollars.
1911	.....	22,448
1912	.....	20,414
1913	.....	12,484
1914	.....	77,717
1915	.....	120,715

Bones, Crude.

		Dollars.
1911	.....	739,906
1912	.....	682,866
1913	.....	565,566
1914	.....	829,730
1915	.....	756,015

Bone and Horn, Manufactures of.

		Dollars.
1911	.....	101,328
1912	.....	78,648
1913	.....	93,913
1914	.....	81,666
1915	.....	63,463

Bone Dust, or Animal Carbon and Ash, Fit Only for Fertilizer.

	Tons.	Dollars.
1911	44,635	1,134,443
1912	36,534	913,023
1913	33,919	818,307
1914	41,446	1,036,493
1915	23,440	584,748

Borax.

	Pounds.	Dollars.
1911	7,319	790
1912	6,409	604
1913	11,768	882
1914	686	93
1915	.....	.....

Bottle Caps, Not Decorated.

		Dollars.
1911	.....	30,962
1912	.....	34,385
1913	.....	24,123
1914	.....	6,840
1915	.....	28,420

Bristles, Crude. Not Sorted.

	Pounds.	Dollars.
1911	11,562	9,803
1912	26,367	14,813
1913	18,913	13,506
1914	27,036	25,280
1915	45,467	3,336

Bristles, Sorted, Bunched, or Prepared.

	Pounds.	Dollars.
1911	3,409,878	2,879,295
1912	3,354,350	2,926,709
1913	3,479,606	3,319,904
1914	3,551,081	3,255,554
1915	3,726,625	3,348,533

Bronze Powder, Brocades, Flitters, and Metallics.

	Pounds.	Dollars.
1911	1,537,070	455,029
1912	1,454,154	416,685
1913	1,405,502	420,308
1914	1,403,091	406,249
1915	1,063,306	288,054

Brown, Spanish, Indian Red, and Colcothar, or Oxide of Iron.

		Dollars.
1911	.....	82,514
1912	.....	90,106
1913	.....	103,604
1914	.....	186,476
1915	.....	183,033

Brown, Vandyke, Cassel Earth or Cassel Brown.

		Dollars.
1911	.....	.....
1912	.....	2,635
1913	.....	1,381
1914	.....	2,663
1915	.....	1,497

Brushes, Feather Dusters and Hair Pencils.

		Dollars.
1911	.....	2,150,335
1912	.....	2,074,325
1913	.....	2,074,141
*1914	.....	563,160

* Figures cover period from July 1 to October 3, 1913.
Stated separately after October 3, 1913.

Brushes.

		Dollars.
1914	.....	1,605,964
1915	.....	1,667,239

Feather Dusters and Hair Pencils.

		Dollars.
1914	.....	2,491
1915	.....	3,590

Buchu Leaves.

	Pounds.	Dollars.
1911	106,345	81,658
1912	181,121	160,608
1913	105,310	114,632
1914	125,368	130,352
1915	120,704	116,689

Cadmium.

	Pounds.	Dollars.
1911	5,956	3,718
1912	6,396	4,603
1913	1,000	1,508
1914	1,543	1,239
1915	264	278

Caffeine.

	Pounds.	Dollars.
1911	57,025	104,011
1912	43,859	139,067
1913	59,773	211,361
1914	80,350	260,323
1915	54,323	186,557

Caffeine Compounds.

		Dollars.
1914	.....	9,712
1915	.....	4,071

Not stated prior to 1914.

Calcium, Acetate, Chloride, Carbide and Nitrate.

		Dollars.
1914	.....	53,455
1915	.....	1,208,394

Not stated prior to 1914.

Calcium Cyanamid or Lime Nitrogen.

	Tons.	Dollars.
1911	5,617	295,545
1912	7,134	387,210
1913	14,656	777,774
1914	29,536	1,590,004
1915	20,564	919,574

Calcium, Tartrate, Crude.

	Pounds.	Dollars.
1914	118,256	8,849
1915	1,755,954	161,566

Not stated prior to 1914.

Calomel, Corrosive Sublimate and Other Mercurial Medicinal Preparations.

		Dollars.
1911	.....	33,896
1912	.....	35,842
1913	.....	42,728
1914	.....	37,589
1915	.....	25,694

Camomile Flowers.

		Dollars.
1911	.....	19,110
1912	.....	17,227
1913	.....	14,176
1914	.....	6,252
1915	.....	13,113

Camwood.

	Tons.	Dollars.
1911	33	62
1912	1½	525
1913	½	191
1914	.....	.....
1915	1	209

Candle Pitch or Tar, and Palm or Other Vegetable Stearin.

	Pounds.	Dollars.
1911	2,758,964	42,084
1912	2,780,736	49,332
1913	3,047,029	56,970
1914	2,202,222	40,004
1915	1,262,725	23,400

Candles and Tapers, Wax and Other.

		Dollars.
1911	.....	21,651
1912	.....	19,178
1913	.....	22,990
1914	.....	14,348
1915	.....	8,638

Cantharides.

	Pounds.	Dollars.
1911	12,317	6,684
1912	17,092	8,925
1913	8,788	5,582
1914	5,648	4,435
1915	14,047	12,266

Carbon Tetrachloride.

	Pounds.	Dollars.
1914	572,910	28,300
1915	342,854	18,139

Not stated prior to 1914.

Cassia Buds, Unground.

	Pounds.	Dollars.
1911	105,982	11,616
1912	26,667	3,418
1913	23,367	2,449
1914	173,449	10,101
1915	193,332	10,394

Cassia, and Cassia Vera, Unground.

	Pounds.	Dollars.
1911	6,446,787	522,228
1912	6,880,723	521,104
1913	7,151,605	547,116
1914	5,216,426	358,218
1915	5,658,154	348,598

Castor or Castoreum.

	Pounds.	Dollars.
1911	5,072	3,077
1912	6,332	4,750
1913	9,245	5,384
1914	6,338	3,468
1915	13,035	5,344

Castor Beans or Seeds.

	Pounds.	Dollars.
1911	790,241	1,005,850
1912	978,258	1,080,620
1913	824,574	918,608
1914	1,043,928	1,154,085
1915	924,605	993,580

Catgut, Whipgut or Wormgut, Unmanufactured.

		Dollars.
1911	.....	153,835
1912	.....	131,240
1913	.....	139,125
1914	.....	123,551
1915	.....	198,081

Catgut, Whipgut or Wormgut, Manufactures of.

		Dollars.
1911	.....	4,096
1912	.....	4,878
1913	.....	3,427
1914	.....	62,466
1915	.....	68,492

Cement, Roman, Portland and Other Hydraulic.

	100 pounds.	Dollars.
1911	907,442	315,760
1912	449,587	168,718
1913	313,092	124,395
1914	374,471	165,460
1915	342,292	132,864

Chalk, Unmanufactured.

	Tons.	Dollars.
1911	123,278	117,041
1912	151,868	128,190
1913	150,010	120,049
1914	128,947	102,907
1915	120,225	91,128

Chalk, When Ground, Precipitated, or Otherwise Prepared, Including Tailor's, Billiard, Red or French.

	Pounds.	Dollars.
1911	3,828,118	92,423
1912	3,809,841	88,391
1913	2,536,622	79,731
1914	*	52,656
1915	.....	36,251

* Quantity not stated after 1913.

Chamois Skin.

		Dollars.
1911	.....	138,384
1912	.....	149,284
1913	.....	149,057
1914	.....	107,324
1915	.....	64,267

Charcoal.

		Dollars.
1911	.....	17,389
1912	.....	31,722
1913	.....	25,557
1914	.....	60,266
1915	.....	39,978

Chicory Root, Raw but Unground.

	Pounds.	Dollars.
1911	5,393,373	111,416
1912	5,401	125
1913	2,203,067	32,939
1914	1,580,925	22,028
1915	471,966	6,717

Chicory Root, Burnt or Roasted, Ground or Granulated.

	Pounds.	Dollars.
1911	531,228	26,225
1912	633,128	31,532
1913	469,301	19,355
1914	765,056	31,968
1915	* 409,234	13,991

China Clay, or Kaolin.

	Tons.	Dollars.
1911	228,598	1,550,247
1912	237,360	1,541,105
1913	263,838	1,753,822
1914	241,956	1,596,954
1915	230,484	1,506,555

Chloral, Hydrate.

	Pounds.	Dollars.
1911	7,024	8,396
1912	.....	.....
1913	.....	.....
1914	244	241
1915	112	25

Chloroform.

	Pounds.	Dollars.
1911	1,010	1,782
1912	926	1,541
1913	942	1,643
1914	2,444	999
1915	26	43

2,274 pounds of the 1914 figures were valued at only 25 cents a pound; 170 pounds at $2.48 per pound.

Chlorophyll, Extract of.

	Pounds.	Dollars.
1911	6,410	2,989
1912	4,461	3,586
1913	7,508	8,544
1914	10,125	8,503
1915	3,499	3,671

Chrome, Yellow or Green and All Other Chromium Colors.

	Pounds.	Dollars.
1911	153,733	25,516
1912	161,153	24,731
1913	148,299	21,405
1914	134,460	22,412
1915	124,638	21,171

Chromium, Hydroxide, Crude.

		Dollars.
1914	.....	5,859
1915	.....	12,444

Not stated prior to 1914.

Cinchona Bark, Alkaloids or Salts of, All Other, Except Quinia, Sulphate of.

	Ounces.	Dollars.
1911	615,840	58,942
1912	529,201	91,802
1913	648,865	131,692
1914	452,292	117,915
1915	203,330	66,004

Cinchonidia.

	Ounces.	Dollars.
1911	17,272	4,219
1912	136,197	14,183
1913	309,395	43,680
1914	205,006	19,502
1915	60,487	8,223

Cinnamon, and Chips of, Unground.

	Pounds.	Dollars.
1911	1,147,428	160,640
1912	1,013,348	109,215
1913	1,405,832	188,267
1914	303,967	44,304
1915	528,254	74,081

Civet.

	Ounces.	Dollars.
1911	27,086	7,850
1912	5,039	6,725
1913	11,260	15,557
1914	2,761	3,978
1915	1,820	2,086

Clay, Common Blue and Grass-Almerode for Manufacturing Crucibles and Glass Melting Pots.

	Tons.	Dollars.
1911	17,470	159,565
1912	16,899	139,688
1913	23,213	211,005
1914	20,587	180,524
1915	12,274	107,146

Clay, Plasticene and Other Modeling.

		Dollars.
1911	.....	2,610
1912	.....	4,512
1913	.....	8,519
1914	.....	9,424
1915	.....	6,451

Clays or Earths, Not Specially Provided For.

	Tons.	Dollars.
1911	233,803	105,177
1912	26,384	120,458
1913	37,370	167,614
1914	37,572	210,574
1915	36,072	153,041

Cliffstone, Unmanufactured.

	Tons.	Dollars.
1911	.....	.....
1912	8,522	11,167
1913	5,626	6,164
1914	9,079	11,046
1915	7,428	8,977

Cloves, Unground.

	Pounds.	Dollars.
1911	4,088,527	533,152
1912	6,414,363	713,230
1913	2,734,962	481,751
1914	5,054,621	597,310
1915	5,346,665	595,546

Clove Stems, Unground.

	Pounds.	Dollars.
1911	6,481	905
1912	.....	.....
1913	32,830	1,333
1914	268	20
1915	4,391	760

Coal-Tar Colors or Dyes Not Specially Provided For.

		Dollars.
1911	.....	6,061,715
1912	.....	6,808,756
1913	.....	6,902,065
1914	.....	7,537,924
1915	.....	5,858,509

Coal Tar, Crude, and Pitch of.

	Barrels.	Dollars.
1911	20,927	43,744
1912	28,908	59,001
1913	14,093	23,691
1914	17,515	25,140
1915	16,391	23,874

Coal-Tar Distillates, Not Medicinal, and Not Colors or Dyes.

		Dollars.
1914	.....	138,636
1915	.....	31,979

Not stated prior to 1914.

Coal-Tar Preparations Not Colors, Dyes or Medicines, Not Specially Provided For.

		Dollars.
1911	.....	652,652
1912	.....	625,666
1913	.....	686,003
1914	.....	162,864

Class dropped after October 3, 1913.

Coal-Tar Products, Not Medicinal, and Not Colors or Dyes, Known as Toluidine, Xylidin, Etc.

		Dollars.
1914	.....	728,536
1915	.....	232,403

Not stated prior to 1914.

Coal Tar, All Other Products, or Preparations, Not Colors or Dyes.

		Dollars.
1911	.....	1,043,803
1912	.....	945,804
1913	.....	1,274,022
1914	.....	718,536
1915	.....	393,112

Cobalt and Cobalt Ore and Zaffer.

	Pounds.	Dollars.
1911	199,431	17,047
1912	884,244	74,586
1913	310,951	30,713
1914	197,009	115,038
1915	24,095	8,225

Cobalt, Oxide of.

	Pounds.	Dollars.
1911	14,561	7,576
1912	22,160	10,822
1913	28,729	14,405
1914	109,584	95,026
1915	109,153	180,087

Cocaine Eegonine, and Salts of.

	Ounces.	Dollars.
1911	4,031	8,366
1912	2,004	3,499
1913	3,715	4,835
1914	3,291	4,101
1915	179	422

Cocculus Indicus.

	Pounds.	Dollars.
1911	3,382	118
1912	.....	.....
1913	.....	.....
1914	4,446	121
1915	9,550	388

Cochineal.

	Pounds.	Dollars.
1911	102,670	25,289
1912	177,799	55,682
1913	109,089	44,249
1914	138,139	53,260
1915	115,430	38,454

Coca Leaves.

	Pounds.	Dollars.
1911	1,226,771	234,162
1912	1,179,540	201,959
1913	1,175,780	139,035
1914	711,564	91,384
1915	1,048,312	98,870

Cocoa Butter, or Butterine, Refined, Deodorized Coconnut Oil, and All Substitutes for Cocoa Butter.

	Pounds.	Dollars.
1911	4,395,452	1,112,778
1912	5,832,063	1,552,973
1913	3,634,986	990,568
1914	2,576,867	801,259
1915	126,028	35,863

Collodion and Celluloid and All Compounds of Pyroxylin.

		Dollars.
1911	.....	132,167
1912	.....	187,772
1913	.....	288,639
1914	.....	583,391
1915	.....	371,714

Columbo Root.

	Pounds.	Dollars.
1911	8,436	610
1912	8,436	610
1913	27,565	794
1914	4,587	134
1915	8,751	468

Coloring for Brandy, Wine, Beer, or Other Liquors.

		Dollars.
1911	.....	2,637
1912	.....	3,383
1913	.....	1,925
1914	.....	1,628
1915	.....	842

Color Foils.

		Dollars.
1911	.....	20,188
1912	.....	13,229
1913	.....	10,925
1914	.....	7,347
1915	.....	2,516

Copperas, or Sulphate of Iron.

	Pounds.	Dollars.
1911	2,338	52
1912	633	12
1913	6,190	174
1914	1,120	18
1915	4,750	95

Copper, Sulphate of, or Blue Vitriol.

	Pounds.	Dollars.
1911	8,787	323
1912	12,112	662
1913	11,051	728
1914	114,730	5,486
1915	45,239	2,156

Corks.

	Pounds.	Dollars.
1911	2,585,284	2,178,919
1912	2,360,015	1,966,613
1913	2,511,285	2,187,867

Stated separately after 1913; see below.

Cork Stoppers.

	Pounds.	Dollars.
1914	888,500	728,317
1915	326,887	250,342

Cork Disks, Wafers or Washers 3-16 Inch or Less in Thickness.

	Pounds.	Dollars.
1914	2,065,567	1,675,683
1915	1,926,864	3,165,540

Corkwood, or Cork Bark, Unmanufactured.

	Pounds.	Dollars.
1911	139,602,251	4,286,760
1912	118,432,309	3,247,086
1913	133,227,879	3,152,070
1914	88,282,329	2,646,018
1915	24,807,803	1,420,581

Cotton Batting.

	Pounds.	Dollars.
1914	42,102	4,378
1915	87,555	8,506

Not stated prior to 1914.

Crayons, Including Charcoal Crayons or Fusains.

		Dollars.
1911	.....	11,372
1912	.....	9,362
1913	.....	12,925
1914	.....	13,359
1915	.....	15,090

Cream of Tartar.

	Pounds.	Dollars.
1911	23,433	3,401
1912	82,980	16,300
1913	66,718	11,797
1914	812,857	159,987
1915	764,868	166,922

Crucibles of Stone and Earthenware.

		Dollars.
1914	.....	10,974
1915	.....	6,704

Not stated prior to 1914.

Cryolite, or Kryolith.

	Tons.	Dollars.
1911	60	4,120
1912	1,999	47,300
1913	2,519	52,440
1914	2,157	47,435
1915	4,569	91,417

Cubebs.

	Pounds.	Dollars.
1911	129,014	44,896
1912	111,358	32,169
1913	166,307	53,663
1914	105,665	32,456
1915	87,538	23,451

Cudbear.

	Pounds.	Dollars.
1911	25,880	1,859
1912	19,929	1,155
1913	27,971	1,755
1914	15,653	1,061
1915	24,827	1,690

Curry and Curry Powder.

		Dollars.
1911	.....	14,279
1912	.....	10,569
1913	.....	12,087
1914	.....	11,807
1915	.....	9,872

Cuttlefish Bone.

	Pounds.	Dollars.
1911	277,489	40,860
1912	281,501	34,891
1913	218,317	30,355
1914	309,540	56,051
1915	282,239	52,041

Dandelion Root.

	Pounds.	Dollars.
1911	72,223	4,717
1912	97,942	7,572
1913	108,434	8,269
1914	109,658	9,389
1915	112,814	12,137

Decalcomanias, in Ceramic Colors.

	Pounds.	Dollars.
1911	116,761	202,886
1912	79,962	133,571
1913	80,094	144,890
1914	45,999	92,528
1915	22,411	62,462

Decalcomanias, All Other, Except Toys.

	Pounds.	Dollars.
1911	45,263	43,596
1912	38,761	38,267
1913	41,370	42,001
1914	132,805	131,494
1915	90,040	87,641

Divi Divi.

	Pounds.	Dollars.
1911	496,130	8,169
1912	221,059	2,807
1913	314,491	4,143
1914	29,032	461
1915	4,513,219	71,367

Dragon's Blood.

	Pounds.	Dollars.
1911	12,034	5,513
1912	34,411	9,292
1913	14,553	5,916
1914	26,283	9,407
1915	23,110	8,446

Dutch Metal Leaf, Bronze.

	100 leaves.	Dollars.
1911	808,219	84,357
1912	796,743	87,013
1913	763,071	104,329
1914	792,578	110,316
1915	896,038	110,163

Eggs, Dried.

	Pounds.	Dollars.
1911	6,081	2,372
1912	5,555	2,176
1913	20,284	7,537
1914	38,061	12,640
1915	30,575	10,385

Eggs, Frozen or Otherwise, Prepared or Preserved, in Packages.

	Pounds.	Dollars.
1914	2,647,974	305,232
1915	2,815,511	198,654

Not stated prior to 1914.

Eggs, Yolks of.

	Pounds.	Dollars.
1911	135,171	15,145
1912	80,744	5,833
1913	227,457	37,027
1914	675,058	168,972
1915	1,382,408	257,607

Enamel Paints.

	Pounds.	Dollars.
1912	35,463	7,684
1913	59,457	11,877
1914	96,174	17,316
1915	86,078	6,504

Not stated prior to 1912.

Ergot.

	Pounds.	Dollars.
1911	141,334	75,592
1912	207,138	187,500
1913	223,793	208,364
1914	185,704	102,640
1915	141,915	92,459

Ether, Amylnitrate.

	Pounds.	Dollars.
1915	4,067	4,444

Not stated prior to 1915.

Ether, Ethyl Chloride.

	Pounds.	Dollars.
1911	7,024	8,396
1912	8,372	5,187
1913	11,241	7,903
1914	9,014	10,046
1915	.....	.....

Ether Fruit, Containing No Alcohol.

	Pounds.	Dollars.
1911	68	140
1912	152	201
1913	81½	105
1914	1,331	1,737
1915	117	1,070

Ethers, Containing More Than 10 Per Cent. and Not More Than 20 Per Cent. Alcohol.

	Pounds.	Dollars.
1911	.....	8,451
1912	.....	5,589
1913	.....	7,029
1914	.....	1,868
1915	66	64

Quantity not stated prior to 1915.

Ethers, Sulphuric.

	Pounds.	Dollars.
1911	1,475	289
1912	1,435	297
1913	755	120
1914	915	131
1915	849	189

Ethers, Not Specially Provided For.

	Pounds.	Dollars.
1911	130	108
1912	239	127
1913	508	303
1914	12,036	5,049
1915	6,301	4,500

Filter Masse or Filter Stock.

	Pounds.	Dollars.
1911	396,742	43,045
1912	413,556	45,734
1913	429,920	49,042
1914	486,476	53,974
1915	349,498	41,880

Filter Tubes.

		Dollars.
1911	.....	4,944
1912	.....	9,348
1913	.....	6,038
1914	.....	7,437
1915	.....	6,639

Fertilizer, Not Specially Provided For. (Used only for Manure.)

	Tons.	Dollars.
1911	191,975	3,914,508
1912	169,283	3,527,646
1913	115,257	2,190,816
1914	197,165	4,241,285
1915	100,155	2,208,193

Flaxseed or Linseed Screenings.

	Pounds.	Dollars.
*1914	1,143,429	4,748
1915	229,443	673

* Not separately stated prior to 1914.

Floral Essences Containing No Alcohol.

		Dollars.
1914	.....	87,086
1915	.....	145,973

Not stated prior to 1914.

Floral or Flower Waters Containing No Alcohol.

		Dollars.
1911	.....	26,737
1912	.....	37,187
1913	.....	31,710
1914	.....	50,297
1915	.....	22,216

Fluorspar.

	Tons.	Dollars.
1911	44,004	148,548
1912	22,664	62,994
1913	23,786	77,535
1914	13,663	50,943
1915	6,925	27,951

Formaldehyde, Solution Containing Not More Than 40 Per Cent. Formaldehyde or Formaline.

	Pounds.	Dollars.
1911	.....	.....
1912	12,303	3,298
1913	.....	.....
1914	14,228	1,443
1915	7,700	814

Fullers' Earth.

	Tons.	Dollors.
1911	15,813	125,899
1912	16,175	138,111
1913	16,866	145,588
1914	19,367	174,276

Subdivided after 1914; see below.

Fullers' Earth, Unwrought or Unmanufactured.

	Tons.	Dollars.
1915	745	5,268

Fullers' Earth, Wrought or Manufactured.

	Tons.	Dollars.
1915	18,754	163,540

Fustic.

	Tons.	Dollars.
1911	5,379	72,673
1912	3,105	45,833
1913	3,785	53,303
1914	7,121	100,501
1915	12,354	179,959

Galalith (Artificial Ivory) and Manufactures of.

		Dollars.
1911	.....	9,460
1912	.....	16,860
1913	.....	12,736
1914	.....	15,060
1915	.....	10,048

Gambier, or Terra Japonica.

	Pounds.	Dollars.
1911	18,910,912	979,036
1912	20,886,462	1,029,456
1913	17,037,805	784,931
1914	16,449,663	625,855
1915	14,109,250	542,200

Gas Liquor, Ammoniacal.

		Dollars.
1911	.....	24,566
1912	.....	36,735
1913	.....	35,245
1914	.....	29,336
1915	.....	31,466

Gelatin.

	Pounds.	Dollars.
1911	1,327,970	237,678
1912	701,949	135,593
1913	1,085,940	279,802
1914	2,439,440	748,215
1915	2,708,362	916,368

Gentian Root.

	Pounds.	Dollars.
1911	1,537,919	56,902
1912	1,583,612	67,837
1913	1,796,928	88,281
1914	2,181,935	109,119
1915	1,022,252	55,563

Ginger Root, Unground, Not Preserved or Candied.

	Pounds	Dollars.
1911	7,363,088	582,161
1912	5,994,564	368,193
1913	7,856,401	406,197
1914	5,006,132	145,792
1915	3,310,391	156,973

Glass Bottles, Vials and Jars, Plain Green or Colored, Molded or Pressed, and Flint, Lime, and Lead, Empty.

	*Pounds.	Dollars.
1911	.....	249,497
1912	.....	206,226
1913	.....	205,267
1914	.....	214,130
1915	3,561,200	83,688

* Quantity not stated prior to 1915.

Glass Demijohns and Carboys, Covered or Uncovered, Empty.

	*Pounds.	Dollars.
1911	.....	10,679
1912	.....	9,153
1913	.....	6,481
1914	.....	3,899
1915	27,990	890

* Quantity not stated prior to 1915.

Glass, Window—Cylinder, Crown, Unpolished.

	Pounds.	Dollars.
1911	29,038,311	825,381
1912	23,426,152	827,868
1913	20,458,971	804,732
1914	31,197,531	1,212,536
1915	16,532,210	679,226

Glass, Window—Cylinder, Crown and Common, Unpolished When Bent or Decorated.

	Pounds.	Dollars.
1911	1,390,770	114,171
1912	1,296,506	103,985
1913	1,773,023	153,723
1914	1,703,186	149,203
1915	460,017	56,223

Glass, Cylinder and Crown, Unpolished, Silvered.

	Pounds.	Dollars.
1914	56,494	3,993
1915	54,393	2,021

Not stated prior to 1914.

Glass, Cylinder, and Crown, Polished.

	Sq. feet.	Dollars.
1911	646,141	140,301
1912	573,995	123,356
1913	579,129	119,395
1914	615,337	121,814
1915	196,274	36,783

Glass, Cylinder, and Crown, Polished, When Bent or Decorated.

	Sq. feet.	Dollars.
1911	362,879	87,713
1912	179,562	43,709
1913	247,428	60,269
1914	147,482	36,116
1915	43,385	10,076

Glass, Cylinder, and Crown, Polished, Silvered.

	Sq. feet.	Dollars.
1914	90,657	20,405
1915	89,346	19,597

Not stated prior to 1914.

Glass, Window — Cylinder and Crown, Polished, Silvered When Ground, Bent or Decorated.

	Sq. feet.	Dollars.
1911	1,960	920
1912	216	167
1913	17	23
1914	138,158	33,034
1915	107,711	28,235

Glass, Plate, Fluted, Rolled, Ribbed, or Rough, or the Same Containing a Wire Netting Within Itself.

	Sq. feet.	Dollars.
1911	335,843	13,170
1912	311,172	14,514
1913	379,219	14,812
1914	436,587	15,207
1915	307,516	12,742

Glass, Plate, Fluted, Rolled, Ribbed or Rough, Ground, Smoothed or Otherwise Obscured.

	Sq. feet.	Dollars.
1911	481,364	105,222
1912	170,599	39,904
1913	9,617	2,247
1914	614,012	126,917
1915	4,872	1,074

Glass, Plate—Cast, Polished, Finished or Unfinished, Unsilvered, or the Same Containing a Wire Netting Within Itself.

	Sq. feet.	Dollars.
1911	3,875,979	853,900
1912	1,110,743	276,452
1913	1,068,427	247,015
1914	2,819,386	631,596
1915	440,718	100,400

Glass, Plate—Cast, Polished, Unsilvered When Bent or Decorated, Etc.

	Sq. feet.	Dollars.
1911	83,955	39,530
1912	53,104	28,262
1913	88,189	47,449
1914	140,896	62,228
1915	27,121	14,531

Glass, Plate—Cast, Polished, Silvered and L. G. Plates, Exceeding in Size 144 Square Inches.

	Sq. feet.	Dollars.
1911	10,252	2,865
1912	1,380	463
1913	832	527
1914	18,229	4,883
1915	2,592	994

Glass, Plate—Cast, Polished, Silvered, When Bent or Otherwise Decorated.

	Sq. feet.	Dollars.
1911	6,488	2,240
1912	4,291	1,696
1913	1,510	1,004
1914	19,659	5,854
1915	6,822	2,152

Glass Enamel, Fusible.

		Dollars.
1911	.....	15,511
1912	.....	14,604
1913	.....	11,997
1914	.....	4,461
1915	.....	10,975

Glauber Salts.

	Tons.	Dollars.
1911	221	4,997
1912	340	4,819
1913	240	5,085
1914	228	5,557
1915	53	1,113

Glazes, Fluxes, Enamels and Colors, Ceramic and Glass.

		Dollars.
1914	.....	38,527
1915	.....	70,782

Not stated prior to 1914.

Glucose.

	Pounds.	Dollars.
1911	268,592	7,859
1912	239,383	8,345
1913	212,635	7,166
1914	262,223	9,025
1915	52,799	1,880

Glue.

	Pounds.	Dollars.
1911	8,080,745	786,615
1912	7,406,641	770,130
1913	5,099,661	672,266
1914	22,545,681	1,792,612
1915	8,086,283	702,350

Glue, Size.*

	Pounds.	Dollars.
1911	162,133	3,740
1912	80,649	2,712
1913	99,093	3,018

* Included in glue after 1913.

Grape Sugar.

	Pounds	Dollars.
1911	52	25
1912	21	20
1913	4,338	598
1914	93	48
1915	361	51

Glycerine, Crude.

	Pounds.	Dollars.
1911	40,192,804	4,339,299
1912	29,734,347	3,649,582
1913	34,399,129	4,247,032
1914	36,230,383	4,473,178
1915	18,661,929	2,185,368

Glycerine, Refined.

	Pounds.	Dollars.
1911	221,236	47,378
1912	183,896	36,221
1913	432,339	73,336
1914	551,306	90,562
1915	360,567	60,908

Gold Beaters' Molds and Skins.

		Dollars.
1911	.....	28,921
1912	.....	33,252
1913	.....	26,408
1914	.....	26,634
1915	.....	13,944

Gold Leaf.

	100 leaves.	Dollars.
1911	44,602	40,395
1912	38,611	34,859
1913	30,902	28,283
1914	37,527	32,482
1915	13,614	12,549

Grease Enfleurage, Not Containing Alcohol.

	Pounds.	Dollars.
1911	128,656	232,821
1912	72,196	110,824
1913	92,446	124,195
1914	40,638	51,417
1915	28,407	31,578

Grease, Wool, Crude.

	Pounds.	Dollars.
1911	13,782,834	231,035
1912	10,789,726	210,997
1913	14,473,551	328,961
1914	12,284,248	292,988
1915	9,281,273	286,705

Grease, Wool, Refined.

	Pounds.	Dollars.
1911	2,473,490	89,683
1912	2,289,189	85,285
1913	2,009,018	86,474
1914	2,691,591	121,847
1915	467,761	23,418

Grease, Soluble, Used in Processes of Softening, Dyeing, or Finishing.

		Dollars.
1911	.....	15,195
1912	.....	4,155
1913	.....	4,886
1914	.....	4,401
1915	.....	2,360

Grease, All Other Not Specially Provided For.

		Dollars.
1911	.....	20,806
1912	.....	13,753
1913	.....	14,207
1914	.....	4,401
1915	.....	84,764

Grease and Oils, Sulphur Oil or Olive Foots.

	Pounds.	Dollars.
1913	13,698,352	874,114
1914	11,714,793	772,055
1915	12,946,066	885,810

Not separately stated prior to 1913.

Grease and Oils, All Other (Except ing Fish Oils), Used in Soap Making, Etc.

	Pounds.	Dollars.
1911	19,188,777	1,106,382
1912	27,578,286	1,301,862
1913	7,334,605	291,934
1914	10,684,016	449,561
1915	17,300,356	709,330

Includes sulphur oil, etc., prior to 1913.

Guano.

	Tons.	Dollars.
1911	31,740	625,044
1912	34,856	685,140
1913	16,462	313,891
1914	21,853	754,727
1915	20,950	534,371

Guiacol Carbonate.

	Pounds.	Dollars.
1914	1,637	2,645
1915	6,907	11,125

Not stated prior to 1914.

Gum, Aloes.

	Pounds.	Dollars.
1911	980,205	71,044
1912	666,229	52,753
1913	909,279	77,938
1914	918,402	64,983
1915	953,186	90,081

Gum, Amber and Amberoid, Crude.

	Pounds.	Dollars.
1911	54,606	436,692
1912	35,663	338,821
1913	35,646	339,984
1914	22,485	117,375
1915	9,856	103,136

Gum, Arabic.

	Pounds.	Dollars.
1911	5,765,582	432,564
1912	6,586,737	568,651
1913	7,111,354	593,126
*1914	2,727,447	182,379

* Included in "Arabic or Senegal" after October 3, 1913.

Gum, Arabic or Senegal.

	Pounds.	Dollars.
1914	3,492,682	240,096
1915	5,184,265	402,507

Gum, Asafoetida.

	Pounds.	Dollars.
1911	114,686	79,802
1912	138,066	77,035
1913	134,579	55,898
1914	106,338	27,193
1915	51,727	12,656

Gum, Benzoin, Gamboge and Mastic.

	Pounds.	Dollars.
1911	98,366	35,758
1912	94,733	36,163
1913	105,967	41,981
1914	41,975	17,386
1915	106,506	42,940

Gum, Camphor, Crude, Natural.

	Pounds.	Dollars.
1911	3,726,319	1,115,586
1912	2,155,751	682,748
1913	3,477,760	979,355
1914	3,476,908	929,725
1915	3,715,387	998,555

Gum, Camphor, Refined.

	Pounds.	Dollars.
1911	492,111	165,296
1912	248,389	93,080
913	463,410	153,020
1914	624,508	201,992
1915	1,140,783	406,587

Gum, Camphor, Synthetic.

	Pounds.	Dollars.
1915	16	3

Not stated prior to 1915.

Gum, Chicle.

	Pounds.	Dollars.
1911	5,368,566	2,551,344
1912	5,266,285	2,433,924
1913	6,920,416	3,059,116
*1914	7,998,187	2,902,454

* Under provisions of law of 1909; imported between July 1 and October 3, 1913; stated separately after 1914.

Gum, Chicle, Crude.

	Pounds.	Dollars.
1914	1,080,665	389,717
1915	2,465,400	839,312

Gum, Chicle, Refined.

	Pounds.	Dollars.
1914	472,766	214,257
1915	1,934,760	962,889

Gum, Copal, Kauri and Damar.

	Pounds.	Dollars.
1910	15,837,432	976,993
1911	23,103,928	2,087,937
1912	24,824,399	2,017,737
1913	31,513,330	2,828,840
*1914	9,207,797	989,808

* Under provisions of law of 1909; imported between July 1 and October 3, 1913; stated separately after 1914.

Gum, Copal.

	Pounds.	Dollars.
1914	13,005,925	938,002
1915	12,528,887	813,985

Gum, Damar.

	Pounds.	Dollars.
1914	3,854,898	337,245
1915	5,388,644	563,056

Gum, Dextrine, Etc.

	Pounds.	Dollars.
1911	6,357,790	190,660
1912	5,352,277	188,332
1913	5,096,891	180,296
1914	6,684,556	213,301

Stated separately after 1914.

Gum, Dextrine, Made from Potato Starch or Potato Flour.

	Pounds.	Dollars.
1914	5,226,421	162,688
1915	4,595,949	154,337

Gum, Dextrine, Dextrine Substitutes, Burnt Starch or British Gum.

	Pounds.	Dollars.
1914	471,491	18,180
1915	274,668	12,028

Gum, Kauri.

	Pounds.	Dollars.
1914	6,554,887	1,097,989
1915	9,530,267	1,444,315

Gum, Lac, Crude, Seed, Button and Stick.

	Pounds.	Dollars.
1911	420,323	46,036
1912	384,926	45,963
1913	293,010	36,832
1914	992,425	143,222
1915	1,126,167	88,293

Gum, Rosin, Crude.

	Pounds.	Dollars.
1911	445,811	10,938
1912	27,590	3,865
1913	299,983	12,605
1914	2,742,083	58,684
1915	1,505,790	42,085

Gum, Senegal.

	Pounds.	Dollars.
1911	281,211	27,612
1912	144,947	20,533
1913	172,528	16,254
*1914	140,097	10,609

* Included in "Arabic or Senegal" after October 3, 1913.

Gum, Shellac.

	Pounds.	Dollars.
1911	15,917,906	2,352,313
1912	18,775,232	2,302,888
1913	22,069,610	3,046,750
1914	16,824,130	2,686,480
1915	24,308,145	3,018,296

Gum, Tragacanth.

	Pounds.	Dollars.
1911	1,261,227	390,623
1912	1,502,261	428,849
1913	1,401,721	463,800
1914	1,301,545	460,364
1915	1,025,081	355,119

Gum, Tragasol.

	Pounds.	Dollars.
1911	1,056,157	21,628
1912	1,105,101	22,693
1913	1,028,804	23,968
1914	913,077	20,310
1915	761,380	16,295

Hemlock Bark Extract for Tanning, Not Containing Alcohol.

	Pounds.	Dollars.
1915	5,263,296	173,908

Not stated prior to 1915.

Hide Cutting, Raw, and Other Glue Stock.

		Dollars.
1911	.....	1,636,522
1912	.....	1,698,632
1913	.....	1,773,796
1914	.....	2,126,632
1915	.....	1,504,325

Honey.

	Gallons	Dollars.
1911	113,015	63,480
1912	90,890	51,706
1913	113,792	64,718
1914	49,163	30,291
1915	258,912	107,172

Hoofs, Horns, and Parts of, Unmanufactured, Including Horn Strips and Tips.

		Dollars.
1911	.....	430,786
1912	.....	354,412
1913	.....	320,192
1914	.....	254,872
1915	.....	156,126

Hop Extract and Lupulin.

		Dollars.
1911	.....	23,993
1912	.....	49,955
1913	.....	34,338
1914	.....	49,451
1915	.....	24,407

Hops.

	Pounds.	Dollars.
1911	8,541,524	2,700,761
1912	2,983,205	2,225,895
1913	8,471,776	2,843,299
1914	5,390,748	2,775,882
1915	11,710,534	2,738,644

Ichthyol.

	Pounds.	Dollars.
1911	39,745	59,504
1912	49,872	72,184
1913	44,347	61,796
1914	66,957	92,485
1915	51,847	70,664

Incense.

		Dollars.
1911	.....	5,713
1912	.....	5,378
1913	.....	14,637
1914	.....	24,382
1915	.....	4,328

India Rubber and Substitutes for, Crude, Balata.

	Pounds.	Dollars.
1911	878,955	625,096
1912	1,522,293	986,124
1913	1,318,598	766,772
1914	1,525,351	789,261
1915	2,473,228	963,384

India Rubber and Substitutes for, Crude, Guayule Gum.

	Pounds.	Dollars.
1911	19,749,522	10,442,157
1912	14,404,482	6,538,723
1913	10,504,945	4,334,400
1914	1,475,804	607,076
1915	5,116,166	1,442,464

India Rubber and Substitutes for, Crude, Gutta, Joolatong.

	Pounds.	Dollars.
1911	51,414,080	2,866,646
1912	48,848,170	2,252,444
1913	45,444,282	2,197,948
1914	24,224,955	1,175,335
1915	14,765,765	704,613

India Rubber and Substitutes for, Crude, Gutta Percha.

	Pounds.	Dollars.
1911	1,648,921	390,548
1912	1,162,687	210,314
1913	1,818,755	271,741
1914	1,552,857	302,623
1915	1,776,851	258,132

India Rubber, Crude, and Milk of.

	Pounds.	Dollars.
1911	72,075,927	76,265,048
1912	*110,101,091	92,956,013
1913	113,218,678	90,110,606
1914	131,938,503	71,223,667
1915	171,429,176	82,812,928

India Rubber, Scrap, or Refuse.

	Pounds.	Dollars.
1911	26,918,578	2,321,682
1912	26,178,749	2,090,938
1913	44,479,429	3,675,824
1914	21,223,493	1,616,786
1915	10,584,494	827,778

India Rubber, Reclaimed.

	Pounds.	Dollars.
1914	4,767,914	449,291
1915	919,628	112,220

Not stated prior to 1914.

Indigo, Carmined.

	Pounds.	Dollars.
1911	12,575	8,144
1912	9,047	5,903
1913	16,329	9,986
*1914	2,130	1,333

*Not stated after October 3, 1913.

Indigo, Crude, Natural, or Synthetic.

	Pounds.	Dollars.
1911	6,908,751	1,152,518
1912	7,697,482	1,160,473
1913	7,712,488	1,102,893
1914	8,252,528	1,115,128
1915	7,983,112	1,004,767

Indigo, Dyes Obtained From.

		Dollars.
1914	.....	34,342
1915	.....	76,258

Not stated prior to 1914.

Indigo, Extracts or Pastes.

	Pounds.	Dollars.
1911	105,493	14,785
1912	223,687	45,984
1913	242,998	43,417
*1914	11,998	2,540

*Not stated after October 3, 1913.

Ink, Printers'.

		Dollars.
1911	.....	2,279
1912	.....	3,890
1913	.....	7,820
1914	.....	24,999
1915	.....	15,022

Ink, Writing and Copying.

		Dollars.
1911	.....	20,368
1912	.....	27,550
1913	.....	28,518
1914	.....	18,941
1915	.....	22,765

Ink, All Other, Including Ink Powders.

		Dollars.
1911	.....	18,371
1912	.....	3,817
1913	.....	4,918
1914	.....	6,931
1915	.....	6,196

Insulating Compounds.

		Dollars.
1911	.....	5,003
1912	.....	2,262
1913	.....	3,080
1914	.....	117
1915	.....	1,192

Iodine, Crude.

	Pounds.	Dollars.
1911	210,440	418,762
1912	497,793	962,981
1913	351,256	739,734
1914	290,391	533,447
1915	631,510	1,284,395

Iodine, Resublimed.

	Pounds.	Dollars.
1911	27	76
1912	30	111
1913	40	96
1914	57	205
1915	3	7

Iodoform.

	Pounds.	Dollars.
1911	33	111
1912	17	49
1913	16	67
1914	86½	301
1915	10	40

Ipecac Root.

	Pounds.	Dollars.
1911	27,654	36,522
1912	41,627	59,828
1913	54,648	86,113
1914	78,654	110,316
1915	137,927	248,408

Iridium.

	Ounces, troy.	Dollars.
1911	3,282	161,137
1912	3,301	181,586
1913	5,341	348,333
1914	2,185	154,542
1915	3,801	220,823

Iron in Pigs.

	Tons.	Dollars.
1911	190,489	5,481,163
1912	114,178	3,642,973
1913	155,900	6,418,582
1914	137,192	4,891,319
1915	103,693	4,218,964

Isinglass and Prepared Fish Sounds.

	Pounds.	Dollars.
1911	295,382	87,546
1912	255,367	81,145
1913	225,165	72,540
1914	146,364	56,433
1915	11,906	9,008

Jalap.

	Pounds.	Dollars.
1911	230,679	61,415
1912	119,211	27,607
1913	227,275	44,632
1914	208,901	25,942
1915	176,047	18,485

Kainite.

	Tons.	Dollars.
1911	586,474	2,637,105
1912	479,817	2,400,590
1913	366,184	2,149,689
1914	526,112	2,579,619
1915	79,124	444,990

Kieserite.

	Tons.	Dollars.
1911	2,100	3,564
1912	7,545	17,689
1913	16,800	44,770
1914	6,649	28,509
1915	.....	.....

Kyanite or Cyanite.

	Tons.	Dollars.
1911	400	1,964
1912	900	7,535
1913	612	7,949
1914	.....	.....
1915	.....	.....

Lac, Dye.

	Pounds.	Dollars.
1911	2,650	386
1912	57,234	4,594
1913	.....	.....
1914	.....	.....
1915	.....	.....

Lactarene, or Casein.

	Pounds.	Dollars.
1911	13,011,018	1,109,466
1512	9,138,338	830,845
1913	8,803,639	651,062
1914	10,799,351	705,305
1915	7,919,742	498,897

Lakes, Dry or in Pulp, Not Specially Provided For.

		Dollars.
1914	.....	59,603
1915	.....	153,430

Not stated prior to 1914.

Lanolin.

	Pounds.	Dollars.
1911	3,014	231
1912	31	19
1913	.....	.....
1914	91,477	9,622
1915	89,585	10,448

Lard.

	Pounds.	Dollars.
1911	4,788	640
1912	4,427	583
1913	4,117	496
1914	1,251	169

Included in next class after October 3, 1913.

Lard, Lard Compound and Lard Substitutes.

	Pounds.	Dollars.
1914	124,385	13,665
1915	729,792	79,632

Lead, Acetate of—Brown, Gray or Yellow.

	Pounds.	Dollars.
1911	15,624	728
1912	4,331	251
1913	42	8
1914	17,477	957
1915	.....	.....

Lead, Acetate, White.

	Pounds.	Dollars.
1911	2,476	141
1912	36,165	1,880
1913	21,599	1,177
1914	110,936	10,764
1915	31,096	1,809

Lead, Nitrate.

	Pounds.	Dollars.
1911	166,325	8,623
1912	169,932	8,822
1913	11,305	605
1914	11,312	712
1915	.....	.....

Lead, Pigs and Bars, Old Refuse Run Into Bars, Etc.

	Pounds.	Dollars.
1911	5,928,666	182,400
1912	5,772,563	176,318
1913	6,905,760	147,838
1914	1,309,204	36,307
1915	951,999	31,385

Lead Pipes, Shot, Glaziers' Lead and Lead Wire.

	Pounds.	Dollars.
1911	64,102	2,886
1912	40,267	2,359
1913	33,736	2,404
1914	64,964	4,611
1915	24,042	1,687

Leeches.

		Dollars.
1911	.....	6,441
1912	.....	6,253
1913	.....	5,587
1914	.....	7,376
1915	.....	1,834

Lemon, Lime, and Sour Orange Juice.

		Dollars.
1911	.....	88,683
1912	.....	117,353
1913	.....	116,370
1914	.....	110,860
1915	.....	139,605

Licorice, Extract of, in Paste, Rolls or Other Forms.

	Pounds.	Dollars.
1911	886,856	120,149
1912	961,428	119,717
1913	832,277	106,288
1914	946,016	122,216
1915	1,080,718	152,756

Licorice Root.

	Pounds.	Dollars.
1911	126,140,623	2,060,571
1912	74,680,270	1,309,819
1913	105,032,429	1,806,756
1914	86,754,265	1,526,967
1915	82,289,410	1,557,442

Lime.

	Pounds.	Dollars.
1911	10,771,700	57,203
1912	9,985,253	54,459
1913	77,319	42,839
1914	65,036	42,926
1915	66,634	29,518

Note.—Unit of quantity is "100 pounds" after 1912.

Lime, Chloride, or Bleaching Powder.

	Pounds.	Dollars.
1911	99,478,325	802,015
1912	72,706,732	600,621
1913	76,092,327	619,492
1914	48,497,239	416,893
1915	18,402,130	197,975

Lime, Citrate.

	Pounds.	Dollars.
1911	5,219,544	712,004
1912	5,903,501	791,416
1913	5,526,954	756,309
1914	3,119,924	496,517
1915	6,242,244	1,102,629

Litharge.

	Pounds.	Dollars.
1911	16,843	764
1912	28,079	1,344
1913	34,022	1,649
1914	43,156	2,355
1915	14,779	774

Litmus.

		Dollars.
1911	.....	277
1912	.....	378
1913	.....	216
1914	.....	263
1915	.....	59

Logwood.

	Tons.	Dollars.
1911	35,340	424,123
1912	39,924	481,384
1913	36,952	475,484
1914	30,172	379,754
1915	54,704	722,410

Logwood and Other Dyewood Extracts.

	Pounds.	Dollars.
1911	3,509,604	197,280
1912	2,463,422	112,352
1913	2,258,206	111,675
1914	1,228,178	77,119
1915	2,061,368	144,207

Mace, Unground.

	Pounds.	Dollars.
1911	562,626	193,879
1912	403,355	168,086
1913	611,005	244,177
1914	287,670	112,178
1915	342,618	124,128

Mace, Bombay, or Wild, Unground.

	Pounds.	Dollars.
1915	5,714	771

Not stated prior to 1915.

Madder, or Munjeet, or Indian Madder, Ground or Prepared.

	Pounds.	Dollars.
1911	45,430	4,206
1912	41,957	2,834
1913	30,602	2,803
1914	47,068	5,817
1915	29,327	3,524

Magnesia, Calcined.

	Pounds.	Dollars.
1911	65,739	10,410
1912	112,611	17,080
1913	72,579	12,592
1914	109,396	15,118
1915	145,896	16,012

Magnesia, Carbonate of, Precipitated.

	Pounds.	Dollars.
1911	43,666	2,628
1912	51,891	2,923
1913	77,190	3,811
1914	58,683	3,972
1915	49,731	2,554

Magnesia, Sulphate of, or Epsom Salts.

	Pounds.	Dollars.
1911	6,204,219	23,092
1912	8,012,226	31,332
1913	9,345,099	35,739
1914	13,550,599	48,742
1915	7,005,598	32,862

Magnesite, Crude.

	Pounds.	Dollars.
1911	37,951,190	127,344
1912	29,415,095	88,482
1913	33,654,209	111,276
1914	21,590,695	46,611
1915	37,463,509	80,625

Magnesite, Calcined.

	Pounds.	Dollars.
1911	296,225,507	1,362,120
1912	204,997,478	990,241
1913	345,322,155	1,731,443
1914	288,989,577	1,485,273
1915	125,883,407	751,706

Malt, Barley.

	Bushels.	Dollars.
1911	845	1,118
1912	3,771	5,098
1913	10,131	14,612
1914	11,807	16,085
1915	5,137	6,334

Malt Extract, Fluid, in Bottles or Jugs.

	Gallons.	Dollars.
1911	297	341
1912	713	989
1913	1,405	2,376
1914	1,284	2,087
1915	318	589

Malt Extract, Fluid, in Casks.

	Gallons.	Dollars.
1911	152	294
1912	4,905	6,041
1913	9,191	9,661
1914	10,333	10,050
1915	4,124	3,951

Malt Extract, Solid or Condensed.

		Dollars.
1911	.....	14,999
1912	.....	4,508
1913	.....	338
1914	.....	767
1915	.....	7,006

Manganese, Oxide and Ore of.

	Tons.	Dollars.
1911	209,506	1,458,177
1912	197,960	1,292,435
1913	407,169	2,195,565
1914	288,837	1,841,472
1915	206,913	1,494,965

Manna.

	Pounds.	Dollars.
1911	47,427	21,424
1912	96,307	49,335
1913	30,869	16,303
1914	88,240	32,848
1915	36,833	12,276

Manure Salts, Including Double Manure Salts, Not Specially Provided For.

	Tons.	Dollars.
1911	160,106	1,265,863
1912	185,682	1,828,426
1913	172,557	1,798,773
1914	260,977	2,757,013
1915	66,411	737,131

Marshmallow or Althea Flowers or Leaves.

	Pounds.	Dollars.
1911	634	20
1912	218	7
1913	561	27
1914	.....	.....
1915	4,695	245

Marshmallow or Althea Roots, Crude.

	Pounds.	Dollars.
1911	3,380	301
1912	.....	.....
1913	4,270	538
1914	6,049	514
1915	6,645	1,209

Meat Extracts, Fluid.

	Pounds.	Dollars.
1911	6,633	3,470
1912	27,472	13,842
1913	29,091	11,096
1914	3,768	3,956
1915	3,738	4,428

Meat Extracts, All Other.

	Pounds.	Dollars.
1911	163,813	209,106
1912	154,354	192,012
1913	106,313	138,489
1914	130,672	198,187
1915	97,656	139,936

Meerschaum, Crude or Unmanufactured.

		Dollars.
1911	.....	180,637
1912	.....	197,647
1913	.....	119,457
1914	.....	102,803
1915	.....	18,950

Menthol.

	Pounds.	Dollars.
1911	50,533	122,977
1912	51,720	200,532
1913	49,896	289,058
1914	127,924	408,954
1915	111,020	236,759

Mica, Ground.

	*Pounds.	Dollars.
1911	.....	2,908
1912	.....	4,942
1913	577,061	6,592
1914	401,603	4,002
1915	378,768	4,143

*Quantity not stated prior to 1912.

Milk, Sugar of.

	Pounds.	Dollars.
1911	4,732	1,848
1912	2,697	1,731
1913	9,026	2,582
1914	578,727	67,901
1915	250,212	28,154

Mineral Salts Obtained by Evaporation from Mineral Waters.

	Pounds.	Dollars.
1911	55,388	32,766
1912	94,106	38,596
1913	103,337	35,429
1914	82,509	40,840
1915	10,757	9,642

Monazite Sand and Thorite.

	Pounds.	Dollars.
1911	797,885	71,215
1912	510,781	41,436
1913	1,145,010	94,425
1914	170,792	12,984
1915	1,493,028	133,819

Morphia, or Morphine, Sulphate of.

	Ounces.	Dollars.
1911	20,345	95,067
1912	13,825	78,891
1913	24,767	141,221
1914	5,805	14,225
1915	1,383	3,300

Mustard, Ground or Prepared, in Bottles or Otherwise.

	Pounds.	Dollars.
1911	1,278,840	22,578
1912	1,400,049	372,323
1913	1,433,118	383,710
1914	1,927,086	519,333
1915	1,080,400	299,444

Musk, in Grain.

		Dollars.
1911	.....	4,119
1912	.....	4,964
1913	.....	7,699
1914	.....	3,991
1915	.....	665

Musk, in Pods.

	Ounces.	Dollars.
1911	8,823	71,739
1912	5,232	46,720
1913	12,994	124,855
1914	3,331	30,373
1915	10,115	65,882

Myrabolans Fruit.

	Pounds.	Dollars.
1911	23,595,695	184,513
1912	22,797,639	185,277
1913	19,735,724	195,264
1914	24,256,373	438,672
1915	18,417,434	198,347

Naphthalin, Phenol and Cresol.

		Dollars.
1914	.....	195,713
1915	.....	233,458

Not stated prior to 1914.

Nickel Oxides.

	Pounds.	Dollars.
1911	1,322	436
1912	714	856
1913	1,124	1,798
1914	2,720	1,245
1915	1,071	505

Nuts and Nutgalls for Dyeing and Tanning.

		Dollars.
1911	.....	97,557
1912	.....	129,457
1913	.....	126,435
1914	.....	177,788
1915	.....	137,972

Nutgall, Extract.

	Pounds.	Dollars.
1911	114,004	12,155
1912	148,725	16,145
1913	145,919	18,228
1914	205,130	25,017
1915	157,084	23,262

Nutmegs, Unground.

	Pounds.	Dollars.
1911	2,392,251	210,400
1912	2,097,422	304,757
1913	3,458,339	368,984
1914	1,755,653	184,779
1915	2,879,986	283,861

Nux Vomica.

	Pounds.	Dollars.
1911	4,330,862	58,183
1912	2,427,187	37,782
1913	2,306,735	39,380
1914	1,891,072	32,983
1915	2,245,338	51,507

Oakum.

	Pounds.	Dollars.
1911	1,482,543	37,439
1912	1,104,280	43,944
1913	1,326,876	64,851
1914	1,884,439	94,796
1915	1,509,155	78,079

Oak Extract for Tanning, Not Containing Alcohol.

	Pounds.	Dollars.
1914	143,094	6,539
1915	65,293	2,628

Not stated prior to 1914.

*Ocher, Ground in Oil or Water.

	Pounds.	Dollars.
1911	10,609	547
1912	16,546	901
1913	16,988	970

* Included in "Ocher and Ochery Earths" after 1913.

Ocher and Ochery Earths.

	Pounds.	Dollars.
1911	13,295,207	318,759
1912	11,729,835	110,398
1913	17,583,272	162,387
1914	21,041,976	154,547
1915	17,430,128	124,359

Oilcake, Bean, Soya.

	Pounds.	Dollars.
1912	10,196,657	120,191
1913	7,004,803	93,002
1914	3,163,260	38,255
1915	5,975,592	64,307

Not stated prior to 1912.

Oilcake, Cottonseed.

	Pounds.	Dollars.
1911	.....	60
1912	1,743,113	15,706
1913	400,686	3,322
1914	5,744,090	53,214
1915	1,743,113	15,706

Not stated prior to 1912.

Oilcake, Cottonseed and Linseed (Bibby's).

	Pounds.	Dollars.
1912	4,015,908	62,755
1913	2,571,694	37,455
1914	2,406,035	24,332

Not stated prior to 1912.

Oilcake, Corn.

	Pounds.	Dollars.
1912	96,200	1,209
1913	102,700	1,282
1914	91,700	1,227
1915	37,500	562

Not stated prior to 1912.

Oilcake, Rapeseed.

	Pounds.	Dollars.
1912	408,576	3,949
1913	.....	.....
1914	.....	.....
1915	47,278	11,204

Not stated prior to 1912.

Oilcake, All Other Bean.

	Pounds.	Dollars.
1912	55,000	451
1913	579,794	5,914
1914	142,878	1,685
1915	724,072	13,035

Not stated prior to 1912.

Oil, Alizarine, Assistant.

	Gallons.	Dollars.
1911	115,172	50,051
1912	108,331	49,859
1913	137,187	62,923
1914	186,234	72,430
1915	48,376	18,820

Oil, Almond, Bitter.

	Pounds.	Dollars.
1911	14,143	19,308
1912	27,315	25,657
1913	10,442	25,629
1914	7,525	21,954
1915	2,711	9,184

Oil, Almond, Sweet.

	Pounds.	Dollars.
1911	107,223	38,602
1912	110,927	41,294
1913	152,300	63,583
1914	52,550	22,777
1915	43,321	23,495

Oil, Amber.

	Pounds.	Dollars.
1911	14,553	845
1912	15,493	1,293
1913	18,707	1,027
1914	15,648	1,058
1915	2,720	239

Oil, Animal, Rendered and Combinations, Not Specially Provided For.

	Gallons.	Dollars.
1911	1,524	495
1912	1,574	955
1913	4,030	2,023
1914	115,871	23,527
1915	140,815	30,464

Oil, Aniline.

	Pounds.	Dollars.
1911	1,917,202	186,332
1912	1,843,443	175,120
1913	2,015,318	171,047
1914	1,444,772	116,628
1915	1,407,305	240,165

Oil, Anise, or Anise Seed.

	Pounds.	Dollars.
1911	82,127	80,132
1912	77,454	86,207
1913	127,501	173,078
1914	42,672	55,602
1915	117,188	119,972

Oil, Bergamot.

	Pounds.	Dollars.
1911	65,199	222,225
1912	67,526	315,227
1913	64,259	310,835
1914	38,647	148,753
1915	58,621	157,519

Oil, Birch Tar.

	Pounds.	Dollars.
1914	40,123	1,808
1915	12,098	671

Not stated prior to 1914.

Oil, Cajeput.

	Pounds.	Dollars.
1911	22,663	8,049
1912	17,995	3,776
1913	9,143	3,224
1914	14,110	4,757
1915	19,243	6,999

Oil, Camomile.

	Pounds.	Dollars.
1911	32	400
1912	31	394
1913	4½	88
1914	12	247
1915	3	67

Oil, Camphor.

	Pounds.	Dollars.
1911	4,088	555
1912	.....	.....
1913	.....	.....
1914	18,874	3,100
1915	68	12

Oil, Caraway.

	Pounds.	Dollars.
1911	43,487	30,794
1912	30,373	21,412
1913	10,107	10,453
1914	3,669	5,063
1915	18,107	20,730

Oil, Cassia and Cinnamon.

	Pounds.	Dollars.
1911	80,224	56,673
1912	142,182	101,050
1913	123,645	97,438
1914	79,155	49,528
1915	54,962	34,411

Oil, Castor.

	Gallons.	Dollars.
1911	7,063	7,007
1912	6,971	6,721
1913	5,241	6,396
1914	189,583	88,053
1915	63,005	29,206

Oil, Cedrat.

	Pounds.	Dollars.
1911	129	955
1912	424	1,329
1913	115	555
1914	159	770
1915	788	3,721

Oil, Chinese, Nut.

	Gallons.	Dollars.
1911	5,840,720	2,204,016
1912	4,816,252	2,373,163
1913	6,004,045	2,738,000
1914	4,878,764	1,960,426
1915	4,723,584	1,649,270

Oil, Citronella and Lemongrass.

	Pounds.	Dollars.
1911	831,732	190,982
1912	1,104,968	281,577
1913	885,486	287,549
1914	702,516	263,149
1915	865,376	307,676

Oil, Civet.

	Ounces.	Dollars.
1911	.....	.....
1912	1,992	1,225
1913	1,155	1,688
1914	250	392
1915	5,181	7,365

Oil, Cocoanut, Not Refined or Deodorized.

	Pounds.	Dollars.
1911	51,121,085	4,144,454
1912	46,021,118	5,828,845
1913	50,493,858	4,182,654
1914	74,588,195	6,726,107
1915	63,249,424	5,430,581

Oil, Cod.

	Gallons.	Dollars.
1911	596,847	138,238
1912	463,962	172,842
1913	466,494	135,969
1914	1,091,246	382,992
1915	1,372,413	433,142

Oil, Codliver.

	Gallons.	Dollars.
1911	259,844	201,394
1912	241,755	200,658
1913	262,516	137,872
1914	371,567	262,927
1915	264,630	157,090

Oil, Cottonseed.

	Gallons.	Dollars.
1911	17,686,375	1,147,683
1912	1,958,831	100,517
1913	3,383,906	185,396
1914	17,510,918	1,046,703
1915	15,162,360	728,961

Oil, Creosote, or Dead.

	Gallons.	Dollars.
1911	45,469,838	2,384,501
1912	50,319,736	2,284,845
1913	63,997,602	3,711,328
1914	59,271,677	3,822,919
1915	37,352,340	2,541,845

Oil, Croton.

	Pounds.	Dollars.
1911	3,156	1,878
1912	1,619	1,399
1913	4,873	4,414
1914	6,186	5,649
1915	4,010	3,481

Oil, Eucalyptus.

	Pounds.	Dollars.
1911	90,038	24,171
1912	72,830	16,431
1913	31,047	7,205
1914	68,053	21,079
1915	99,218	27,095

Oil, Fennel.

	Pounds.	Dollars.
1911	7,169	2,542
1912	6,895	2,946
1913	5,702	4,160
1914	4,078	2,416
1915	409	441

Oil, Fish (Not Specially Provided for), Including Sod Oil.

	Gallons.	Dollars.
1911	875,086	276,460
1912	607,027	179,963
1913	519,121	152,803
1914	517,562	154,175
1915	439,741	108,739

Oil, Fusel or Amylic Alcohol.

	Pounds.	Dollars.
1911	5,176,344	839,460
1912	5,468,554	1,464,031
1913	5,116,660	1,183,870
1914	5,670,801	888,869
1915	3,298,228	699,512

Oil, Hempseed.

	Gallons.	Dollars.
1911	20,439	7,524
1912	.....	.....
1913	.....	.....
1914	375	123
1915	.....	.....

Not separately stated during 1912 and 1913.

Oil, Jasmine.

	Pounds.	Dollars.
1911	1,851	30,766
1912	2,074	29,620
1913	3,416	39,554
1914	611	14,360
1915	291	5,160

Oil, Juniper.

	Pounds.	Dollars.
1911	21,457	10,110
1912	20,808	10,620
1913	17,356	13,037
1914	14,545	8,691
1915	10,388	7,637

Oil, Lavender, and Aspic or Spike Lavender.

	Pounds.	Dollars.
1911	26,683	180,232
1912	162,920	268,347
1913	227,013	482,779
1914	64,541	100,431
1915	72,989	133,375

Oil, Lemon.

	Pounds.	Dollars.
1911	430,768	323,552
1912	400,424	491,690
1913	410,003	794,215
1914	329,440	752,714
1915	561,387	630,338

Oil, Limes.

	Pounds.	Dollars.
1911	9,122	9,466
1912	12,821	9,165
1913	13,075	15,025
1914	16,559	23,828
1915	9,154	9,279

Oil, Linseed or Flaxseed, Raw, Boiled or Oxidized.

	Gallons.	Dollars.
1911	3,959,475	2,711,560
1912	809,307	538,816
1913	172,522	110,840
1914	187,933	91,544
1915	537,810	249,611

Oil, Mace.

	Pounds.	Dollars.
1911	2,385	1,033
1912	1,944	902
1913	5,737	2,611
1914	2,652	1,380
1915	4,776	2,005

Oil, Neroli, or Orange Flower.

	Pounds.	Dollars.
1911	16,207	49,306
1912	17,437	71,054
1913	38,305	171,932
1914	15,928	73,265
1915	13,251	31,478

Oil, Olive (for Manufacturing Purposes Only).

	Gallons.	Dollars.
1911	717,494	486,788
1912	702,565	438,542
1913	725,100	483,329
1914	799,260	503,093
1915	717,361	498,689

Oil, Olive, Edible.

	Gallons.	Dollars.
1911	4,103,543	5,796,715
1912	4,760,889	6,065,690
1913	4,772,775	6,227,526
1914	6,391,827	8,201,831
1915	6,622,246	8,119,512

Oil, Orange.

	Pounds.	Dollars.
1911	73,786	99,302
1912	97,065	168,831
1913	77,797	155,299
1914	104,491	222,118
1915	97,014	140,246

Oil, Origanum, Red or White.

	Pounds.	Dollars.
1911	849	273
1912	718	645
1913	8,522	8,502
1914	507	630
1915	14,349	15,111

Oil, Palm.

	Pounds.	Dollars.
1911	57,251,758	4,096,362
1912	46,907,854	3,090,681
1913	48,442,962	3,468,515
1914	61,753,482	4,118,077
1915	31,482,292	2,024,827

Oil, Palm Kernel.

	Pounds.	Dollars.
1911	15,780,315	1,204,217
1912	25,910,154	2,073,721
1913	23,570,152	1,850,270
1914	30,588,958	2,826,972
1915	4,908,702	446,979

Oil, Paraffin.

	Gallons.	Dollars.
1911	162,380	53,133
1912	142,076	34,120
1913	116,192	35,193
1914	167,384	55,923
1915	60,412	11,609

Oil, Peanut.

	Gallons.	Dollars.
1911	1,121,697	674,857
1912	878,060	578,417
1913	1,221,676	820,359
1914	1,332,198	915,439
1915	830,038	505,747

Oil, Peppermint.

	Pounds.	Dollars.
1911	2,127	12,126
1912	1,839	11,411
1913	3,529	13,097
1914	18,794	41,367
1915	9,209	8,959

Oil, Perilla.

	Pounds.	Dollars.
1914	117,893	6,090
1915	69,174	5,485

Not stated prior to 1914.

Oil, Poppy Seed, Raw, Boiled or Oxidized.

	Gallons.	Dollars.
1911	18,686	14,071
1912	8,462	6,508
1913	9,605	7,788
1914	7,973	6,422
1915	11,045	7,072

Oil, Rapeseed.

	Gallons.	Dollars.
1911	1,355,182	597,599
1912	1,185,007	588,495
1913	1,564,659	784,750
1914	1,463,099	704,747
1915	1,491,999	784,235

Oil, Rosemary, or Anthross.

	Pounds.	Dollars.
1911	94,098	42,049
1912	150,592	62,369
1913	284,144	100,930
1914	85,243	30,177
1915	93,663	44,630

Oil, Roses, Attar of.

	Ounces.	Dollars.
1911	87,949	395,975
1912	160,065	580,783
1913	133,325	791,370
1914	40,454	301,000
1915	60,011	252,592

Oil, Seal.

	Gallons.	Dollars.
1911	230,726	87,410
1912	1,153	975
1913	8,972	3,131
1914	179,734	64,963
1915	479,571	166,836

Oil, Sesame, or Sessamum Seed.

	Pounds.	Dollars.
1911	1,478,897	119,543
1912	1,380,637	109,173
1913	1,936,647	158,442
1914	1,389,649	118,075
1915	341,545	28,653

Oil, Soya Bean.

	Pounds.	Dollars.
1911	41,105,920	2,555,707
1912	28,019,500	1,578,968
1913	12,440,496	635,882
1914	16,363,645	830,870
1915	19,250,628	901,643

Oil, Thyme.

	Pounds.	Dollars.
1911	42,317	35,956
1912	66,039	47,863
1913	138,972	105,296
1914	89,148	63,864
1915	99,580	88,498

Oil, Valerian.

	Pounds.	Dollars.
1911	35	120
1912	18	53
1913	40	124
1914	6	12
1915	15	36

Oil, Whale (Includes Sperm Oil Prior to October 3, 1913).

	Gallons.	Dollars.
1911	1,284,190	445,331
1912	893,102	254,430
1913	1,166,339	278,208
*1914	82,756	26,553

*July 1 to October 3, 1913. Stated separately after October 3, 1913.

Oil, Whale, Sperm.

	Gallons.	Dollars.
1914	157,142	66,652
1915	92,033	38,612

Oil, Whale, All Other.

	Gallons.	Dollars.
1914	290,745	94,424
1915	604,503	215,644

Opium, Aqueous Extract of, and Tinctures of, as Laudanum.

		Dollars.
1911	.....	3,693
1912	.....	.....
1913	.....	671
1914	.....	5,279
1915	.....	5,565

Opium, Crude, or Unmanufactured, Not Adulterated.

	Pounds.	Dollars.
1911	502,407	1,644,301
1912	384,912	2,020,026
1913	441,277	2,130,154
1914	441,621	1,731,589
1915	353,006	1,099,217

Opium, Dried, Powdered, or Otherwise Advanced.

	Pounds.	Dollars.
1911	67,962	394,290
1912	77,551	641,887
1913	49,071	389 864
1914	32,095	205 684
1915	38,977	308,928

Opium Salts and Other Alkaloids of, Not Specially Provided For.

	Ounces.	Dollars.
1911	480	2,545
1912	634	1,742
1913	9,672	28 587
1914	11,593	64,528
1915	8,626	49,584

Orange Mineral.

	Pounds.	Dollars.
1911	923,254	36,577
1912	443 802	25 998
1913	287,535	18,595
1914	362,963	24,692
1915	166,202	12,279

Orchil, or Orchil Liquid.

		Dollars.
1911	.....	42 559
1912	.....	54,653
1913	.....	27,386
1914	.....	21,569
1915	.....	37,802

Orris, or Iris, Root.

	Pounds.	Dollars.
1911	535,698	42,223
1912	583,203	44,395
1913	357,963	37,326
1914	580,484	71,941
1915	554,125	52,893

Osmiridium.

	Ounces, troy.	Dollars.
1914	666	43,659
1915	911	58,014

Not stated prior to 1914.

Palladium.

	Ounces, troy.	Dollars.
1911	843	37,588
1912	2,254	96,525
1913	9 577	401,707
1914	3,986	169,171
1915	40	2,779

Papers, Filtering and Crepe.

	Pounds.	Dollars.
1911	553,191	79,988
1912	516,544	88,435
1913	665,136	116,582
1914	984,597	344,538
1915	875,497	114,390

Papers, Greaseproof and Imitation Parchment.

	Pounds.	Dollars.
1914	4,011,250	205,797
1915	3,907,097	200,103

Not separately stated prior to 1914.

Paraffin.
(Not including oil.)

	Pounds.	Dollars.
1911	9,518,547	436,875
1912	8,055,216	351,415
1913	11,521,205	503,802
1914	7,501,463	327,402
1915	5,628,811	254,389

Paris Green and London Purple.

	Pounds.	Dollars.
1911	22,193	2,361
1912	183,089	4.783
1913	165,820	7,692
1914	33,373	3,572
1915	16,800	2,975

Pearl Hardening for Paper Makers' Use.

		Dollars.
1911	.....	9,060
1912	.....	6,679
1913	.....	8,612
1914	.....	5,294
1915	.....	3,699

Pepper, Black or White, Unground.

	Pounds.	Dollars.
1911	23,193,416	1,697,027
1912	26,450,845	2,617,440
1913	27,568,317	2,855,184
1914	21,809,875	2,179,995
1915	26,620,992	2,685,522

Pepper, Cayenne, Capsicum or Red Pepper, Ground or Unground.

	Pounds.	Dollars.
1911	5,242,284	557,759
1912	6,422,772	597,652
1913	4,022,755	412,823
*1914	984,716	130,076

* Figures are for July 1 to October 3, 1913. Stated separately after October 3, 1913.

Pepper, Capsicum, Red or Cayenne, Unground.

	Pounds.	Dollars.
1914	6,522,463	711,966
1915	3,093,232	332,616

Pepper, Capsicum, Red or Cayenne, Ground.

	Pounds.	Dollars.
1914	1,522,508	165,807
1915	1,827,666	207,379

Perfumery, Alcoholic, Toilet Waters, Etc.

	Pounds.	Dollars.
1911	245,532	709,632
1912	271,838	738,549
1913	286,025	819,685
1914	301,443	771,758
1915	240,075	689,930

Perfumery, Cosmetics and Toilet Preparations Not Containing Alcohol, Not Specially Provided For.

		Dollars.
1911	.....	798,586
1912	.....	872,478
1913	.....	1,026,369
1914	.....	1,086,211
1915	.....	1,542,131

Persian Berry Extracts for Dyeing.

	Pounds.	Dollars.
1911	103,374	9,608
1912	81,363	9,020
1913	64,883	7,173
1914	115,336	12,924
1915	92,876	12,245

Petroleum, Crude.

	Gallons.	Dollars.
1911	10,735,888	233,774
1912	146,788,173	2,549,651
1913	459,542,222	7,608,796
1914	843,080,788	11,779,938
1915	653,757,824	8,918,138

Petroleum, Refined, Benzine.

	Gallons.	Dollars.
1911	10,755,888	237,774
1912	15,978,776	985,768
1913	14,972,423	1,266,896
1914	16,152,167	1,399,630
1915	6,783,627	727,855

Petroleum, Refined, Gasoline and Naphtha.

	Gallons.	Dollars.
1912	7,564	1,888
1913	570	118
1914	14,175	1,992
1915	6,783,627	727,855

Not stated prior to 1912.

Petroleum, Refined, All Other.

	Gallons.	Dollars.
1912	2,155,499	211,955
1913	1,464,412	307,479
1914	1,796,093	430,064
1915	496,968	98,696

Not stated prior to 1912.

Pewter and Brittania Metal, Old and Fit Only to Be Remanufactured.

	Pounds.	Dollars.
1911	8,596	2,270
1912	4,640	984
1913	22,270	6,099
1914	10,408	2,219
1915	23,039	5,397

Phenophthalein.

	Pounds.	Dollars.
1914	14,076	14,090
1915	49,326	46,295

Not stated prior to 1914.

Phosphate, Crude.

	Tons.	Dollars
1911	18,980	203,326
1912	20,853	179,605
1913	23,478	184,294
1914	23,551	177,838
1915	2,601	26,982

Phosphorus.

	Pounds.	Dollars.
1911	40,676	17,783
1912	11,632	5,074
1913	650	270
1914	605	264
1915	612	251

Pimento, Unground.

	Pounds.	Dollars.
1911	5,659,208	156,542
1912	5,444,605	137,240
1913	7,212,106	259,558
1914	7,517,971	54,506
1915	1,330,158	36,769

Pitch, Burgundy.

	Pounds.	Dollars.
1911	1,077,390	41,763
1912	873,393	36,795
1913	977,929	43,790
1914	1,055,327	40,480
1915	131,967	4,051

Pitch, Marine Glue.

	Pounds.	Dollars.
1911	267,276	10,743
1912	261,674	11,910
1913	393,186	14,392
1914	317,506	15,154
1915	56,532	3,807

Plaster Rock, or Gypsum, Crude.

	Tons.	Dollars.
1911	342,528	408,151
1912	363,657	426,524
1913	396,927	462,889
1914	417,580	492,370
1915	260,161	316,308

Plaster Rock, or Gypsum, Ground or Calcined.

	Tons.	Dollars.
1911	2,045	14 261
1912	402	3,952
1913	3,910	26,298
1914	4,292	30,225
1915	3,943	30,333

Plasters, Healing, or Curative, and Court Plaster.

		Dollars.
1911	.....	3,964
1912	.....	4,589
1913	.....	4,639
1914	.....	10,979
1915	.....	7,171

Plumbago or Graphite.

	Tons.	Dollars.
1911	20,152	1,677,963
1912	18,590	1,428,396
1913	25 233	1,972,177
1914	24,866	1,846,074
1915	17,057	1,387,873

Polishing and Cleaning Creams.

		Dollars.
1914	.....	6,085
1915	.....	11,600

Not stated prior to 1914.

Potash, Bicarbonate of, Refined.

	Pounds.	Dollars.
1911	325,016	16,428
1912	276,204	13,155
1913	311,645	14,295
1914	478,853	22,767
1915	383,534	20,341

Potash, Bichromate and Chromate of.

	Pounds.	Dollars.
1911	22,880	1,699
1912	24,094	2,273
1913	27,671	2,601
1914	34,860	2,822
1915	40,227	3,317

Potash, Carbonate of, Crude.

	Pounds.	Dollars.
1911	10,680,341	327,400
1912	6,747,150	211,602
1913	10,063,912	295,066
1914	9,046,302	240,451
1915	8,620,504	291,341

Potash, Carbonate of, Refined.

	Pounds.	Dollars.
1911	11,143,144	396,728
1912	11,627,209	383,958
1913	14,035,111	412,587
1914	10,421,005	368,958
1915	2,377,940	92,959

Potash, Caustic or Hydrate of, Unrefined.

	Pounds.	Dollars.
1911	7,426,402	309,965
1912	8,422,007	330,684
1913	8,994,449	348,501
1914	8,565,451	326,650

Included in "Potash, Hydrate of, etc." after 1914.

Potash, Caustic or Hydrate of, Refined.

	Pounds.	Dollars.
1911	82,854	9.254
1912	77,184	8,097
1913	112,822	11,920
1914	18,751	1,977

Included in "Potash, Hydrate of, etc.," after 1914.

Potash, Chlorate of.

	Pounds.	Dollars.
1911	25,069	2,096
1912	42,131	3,444
1913	1,235,732	66,609
1914	40,319	3,408
1915	27,419	4,614

Potash, Crude, or Black Salts.

	Pounds.	Dollars.
1914	2,599,883	52,454
1915	4,076,783	83,502

Not stated prior to 1914.

Potash, Cyanide of.

	Pounds.	Dollars.
1911	2,325,289	326,972
1912	2,095,541	312,777
1913	950,890	137,535
1914	1,236,799	183,259
1915	747,627	143,331

Potash, Hydrate of, Containing Not More Than 15 Per Cent. of Caustic Soda.

	Pounds.	Dollars.
1915	4,993,471	225,002

Not stated prior to 1915.

Potash, Muriate of.

	Tons.	Dollars.
1911	214,283	6,449,575
1912	242,033	7,258,759
1913	225,887	6,737,757
1914	234,856	7,925,781
1915	102,882	3,660,353

Potash, Permanganate of.

	Pounds.	Dollars.
1911	638,159	44,135
1912	432,937	29,932
1913	527,366	25,314
1914	1,351,855	91,065
1915	1,039,304	78,924

Potash, Prussiate of, Red.

	Pounds.	Dollars.
1911	55,082	10,230
1912	71,612	11,264
1913	65,514	11,372
1914	89,976	15,325
1915	83,574	14,922

Potash, Prussiate of, Yellow.

	Pounds.	Dollars.
1911	1,777,313	180 584
1912	2,072,761	203,295
1913	2,812,408	309,372
1914	3,508,228	390,021
1915	2,316,736	255,711

Potash, Sulphate of.

	Tons.	Dollars.
1911	53,135	1,952,370
1912	50,551	1,883,235
1913	48,023	1,798,369
1914	44,986	1,889,491
1915	21,705	1,071,623

Potassium Iodide.

	Pounds.	Dollars.
1911	272	519
1912	238	451
1913	120	239
1914	270	491
1915	4	13

Putty (Whiting and Paris White), Ground in Oil.

	Pounds.	Dollars.
1911	77,581	1,151
1912	29,047	886
1913	36,434	881
1914	37,020	911
1915	18,078	343

Quebracho Extract.

	Pounds.	Dollars
1911	77,606,700	3,213,344
1912	74,239,715	2,442,893
1913	63,604,814	1,672,314
1914	99,605,839	2,699,104
1915	126,565,857	3,676,749

Quebracho Wood.

	Tons.	Dollars.
1911	64,703	952,726
1912	68,174	982,315
1913	101,869	1,300,126
1914	73,957	900,889
1915	54,715	750,873

Quicksilver.

	Pounds.	Dollars
1911	361,332	191,108
1912	193,411	100,270
1913	880	387
1914	444,673	192,909
1915	561,924	292,244

Quill Toothpicks.

		Dollars.
1911	.....	11,984
1912	.....	8,166
1913	.....	18,646
1914	.....	10,041
1915	.....	8,519

Quill, Other Manufactures of.

		Dollars.
1911	.....	13,170
1912	.....	11.135
1913	.....	5,959
1914	.....	11,841
1915	.....	9,342

Quinia, Sulphate of.

	Ounces.	Dollars.
1911	2,469,082	347,241
1912	2,368,840	301,111
1913	2,279,734	297,409
1914	2,224,765	486,641
1915	1,508,931	378,511

Radium, and Salts of, and Radioactive Substances.

		Dollars.
1914	.....	54,327
1915	.....	29,983

Not stated prior to 1914.

Red Lead.

	Pounds.	Dollars.
1911	1,035,254	40,225
1912	1,166,692	47,484
1913	145,478	7,223
*1914	69,867	5,674
1915	6,697	342

*29,940 pounds, $3,681, came in free of duty for construction and equipment of vessels.

Rennets, Raw or Prepared.

		Dollars.
1911	.....	110,142
1912	.....	102,142
1913	.....	125,588
1914	.....	129.720
1915	.....	106,614

Rhubarb Root.

	Pounds.	Dollars.
1911	125,816	13,950
1912	149,838	15,756
1913	121,701	16,554
1914	181,240	22,354
1915	233,699	24,592

Rose Leaves.

		Dollars.
1911	.....	646
1912	.....	3
1913	.....	67
1914	.....	1,434
1915	.....	484

Rosin, Violin.

		Dollars.
1911	.....	53,611
1912	.....	34.147
1913	.....	30,621
1914	.....	11,625
1915	.....	6,532

Rotten Stone and Tripoli.

		Dollars.
1911	.....	53,611
1912	.....	34.147
1913	.....	30,621
1914	.....	20,858
1915	.....	24,796

Saccharin.

	Pounds.	Dollars.
1911	3,484	2,345
1912	457	373
1913	47	64
1914	8	80
1915	5,617	6,737

Saffron, Safflower, and Extract of, and Saffron Cake, Not Containing Alcohol.

		Dollars.
1911	.....	88,215
1912	.....	91,203
1913	.....	93,146
1914	.....	83,678
1915	.....	70,132

Sage, Unground.

	Pounds.	Dollars.
1911	1,278,840	22,579
1912	1,518,524	24,496
1913	1,299,120	19,893
1914	2,003,469	39.309
1915	822,083	48,454

Sago, Crude, and Sago Flour.

	Pounds.	Dollars.
1911	11,765,106	196,304
1912	8,842,299	169,170
1913	12,389,192	230,992
1914	9,970,717	160,924
1915	6,630,400	106,090

Salep or Sale p.

		Dollars.
1911	.....	.....
1912	.....	154
1913	.....	44
1914	.....	75
1915	.....	2,762

Salicin.

	Pounds.	Dollars.
1911	3,282	11,802
1912	3,835	13,500
1913	3,274	12 146
1914	4,129	14,982
1915	1,800	6,560

Salol.

	Pounds.	Dollars.
1914	660	219
1915	23,430	11,445

Not stated prior to 1914.

Salt.

	100 pounds.	Dollars.
1911	2,824 536	390.043
1912	2,901,815	379,540
1913	2,508,561	356 911
1914	3,397,496	456,426

Stated separately after 1914; see following classes.

Salt in Bags, Barrels or Other Packages.

	100 pounds.	Dollars.
1915	620,462	213,676

Salt in Bulk.

	100 pounds.	Dollars.
1915	1,959,638	172,888

Salt Cake (Sulphate of Soda).

	Tons.	Dollars.
1911	11,398	121.218
1912	659	8 394
1913	189	4,771
1914	206	2,430
1915	189	3,566

Saltpeter, Crude.

	Pounds.	Dollars.
1911	9,288,537	282,835
1912	6,172,441	213,258
1913	10,989,382	288 995
1914	3,547 252	113,470
1915	677,785	22,488

Saltpeter, Refined.

	Tons.	Dollars.
1911	426	38 384
1912	222	23,896
1913	431	22,142
1914	163	20,173
1915	34	4,229

Santonine, and Its Combination with Acids Not Subject to Duty.

	Pounds.	Dollars.
1911	4,291	39,678
1912	3,090	39,956
1913	1,982	44,358
1914	5,230	125,129
1915	912	25,858

Saponin.

		Dollars.
1914	.....	6,643
1915	.....	5,967

Not stated prior to 1914.

Sarsaparilla Root.

	Pounds.	Dollars.
1911	379,091	43,849
1912	432,917	51,428
1913	291,308	28,360
1914	224,970	36,284
1915	250,178	36,055

Seed, Anise.

	Pounds.	Dollars.
1911	1,144,845	66,131
1912	958,725	66,180
1913	1,290,831	84,941
1914	231,117	15,412
1915	432,863	30,932

Seed, Canary.

	Pounds.	Dollars.
1911	6,352,722	138,585
1912	4,704,625	106,276
1913	6,219,623	184,596
1914	4,503,280	190,530
1915	4,911,298	208,833

Seed, Caraway.

	Pounds.	Dollars.
1911	2,856,098	150,997
1912	3,616,481	176,182
1913	3,691,831	234,294
1914	1,969,300	107,599
1915	2,895,418	172,742

Seed, Cardamom.

	Pounds.	Dollars.
1911	94,398	45,788
1912	81,994	47,403
1913	113,461	104,287
1914	80,782	72,148
1915	152,679	106,180

Seed, Coriander.

	Pounds.	Dollars.
1911	1,069,099	35,826
1912	2,055,423	67,822
1913	1,324,735	35,817
1914	1,238,459	46,158
1915	1,496,288	36,851

Seed, Cotton.

	Pounds.	Dollars.
1911	1,365,415	13,358
1912	2,644,144	22,124
1913	3,264,114	56,315
1914	8,891,303	66,033
1915	22,724,868	114,983

Seed, Cummin.

	Pounds.	Dollars.
1911	615,668	42,301
1912	616,343	39,305
1913	529,667	27,178
1914	530,550	31,709
1915	694,344	83,534

Seed, Fenugreek and Fennel.

	Pounds	Dollars.
*1911	1,643,651	40,798

*Separately stated after 1911.

Seed, Fennel.

	Pounds.	Dollars.
1912	480,978	18,547
1913	187,665	14,410
1914	207,135	12,290
1915	293,810	13,622

Included with fenugreek prior to 1912.

Seed, Fenugreek.

	Pounds.	Dollars.
*1912	1,504,224	28,620
1913	1,944,407	37,434
1914	1,619,230	29,601
1915	1,434,826	30,295

*Not separately stated prior to 1912.

Seed, Flaxseed or Linseed.

	Bushels.	Dollars.
1911	10,490,962	21,384,809
1912	6,859,112	13,016,184
1913	5,274,922	8,118,319
1914	8,652,022	10,571,656
1915	10,373,902	12,983,548

Seed, Millet, Prepared.

		Dollars.
1911	.....	15,573
1912	.....	18,330
1913	.....	16,977
1914	.....	26,680
1915	.....	1,790

Seed, Mustard.

	Pounds.	Dollars.
1911	8,512,475	298,145
1912	12,108,171	419,328
1913	12,719,682	417,370
1914	11,543,941	370,964
1915	10,157,934	543,586

Seed, Poppy.

	Bushels.	Dollars.
1911	57,783	140,616
1912	44,717	164,804
1913	77,396	237,069
1914	56,322	126,744
1915	52,899	172,018

Seed, Rape.

	Pounds.	Dollars.
1911	3,039,349	96,768
1912	6,727,169	233,543
1913	4,308,750	160,634
1914	5,970,937	211,301
1915	5,194,132	230,280

Seed, Soya Bean.

	Pounds.	Dollars.
1914	1,929,455	49,507
1915	3,837,865	87,306

Not stated prior to 1914.

Selenium and Salts of.

		Dollars.
1914	.....	863
1915	.....	43

Not stated prior to 1914.

Senna in Leaves.

	Pounds.	Dollars.
1911	3,063,275	143,846
1912	3,164,093	154,012
1913	2,834,117	150,555
1914	2,454,772	173,654
1915	2,180,288	200,313

Sheep Dip.

		Dollars.
1911	.....	18,582
1912	.....	22,967
1913	.....	63,337
1914	.....	16,842
1915	.....	32,963

Sienna and Sienna Earths.

	Pounds.	Dollars.
1911	2,851,017	42,695
1912	2,774,351	36,114
1913	3,962,601	57,358
1914	6,480,329	55,925
1915	6,656,031	64,658

Silver Leaf.

	100 leaves.	Dollars.
1911	28,240	3,220
1912	24,747	3,116
1913	17,130	2,122
1914	34,070	4,353
1915	31,298	3,718

Slag, Basic, Ground or Unground.

	Tons.	Dollars.
1911	13,151	89,175
1912	11,751	110,229
1913	5,124	146,477
1914	9,509	108,365
1915	651	7,309

Soap, Castile.

	Pounds.	Dollars.
1911	4,573,057	364,200
1912	5,034,504	388,460
1913	4,656,365	357,888
1914	4,604,995	368,310
1915	4,067,921	341,107

Soap, Medicinal.

	Pounds.	Dollars.
1911	50,347	15,063
1912	32,731	11,721
1913	42,518	14,734
1914	74,132	29,306
1915	22,048	14,082

Soap Powder.

		Dollars.
1914	.....	211
1915	.....	3,362

Not stated prior to 1914.

Soap, Toilet, Perfumed.

		Dollars.
1911	.....	380,471
1912	.....	324,625
1913	.....	324,207
1914	.....	248,194
1915	.....	193,646

Soap, Toilet, Unperfumed.

		Dollars.
1914	.....	100,650
1915	.....	140,048

Not stated prior to 1914.

Soap, All Other, Not Specially Provided For.

		Dollars.
1911	.....	68,806
1912	.....	73,687
1913	.....	58,526
1914	.....	84,745
1915	.....	53,940

Soda, Ash.

	Pounds.	Dollars.
1911	3,878,172	43,365
1912	2,904,587	33,459
1913	3,100,790	35,461
1914	2,223,991	28,100
1915	2,127,542	29,022

Soda, Arsenate of.

	Pounds.	Dollars.
1911	108,442	5,199
1912	856,491	11,195
1913	1,267,998	55,941
1914	228,270	8,267
1915	85,850	3,188

Soda, Benzoate of.

	Pounds.	Dollars.
1914	190	97
1915	40,903	19,183

Not stated prior to 1914.

Soda, Bicarbonate of, Etc.

	Pounds.	Dollars.
1911	85,202	2,634
1912	110,015	3,193
1913	80,699	2,238
1914	88,873	2,324
1915	93,318	2,584

Soda, Bichromate and Chromate of.

	Pounds.	Dollars.
1911	11	1
1912	.....	.....
1913	9	3
1914	11,056	585
1915	.....	.....

Soda, Borate of, or Borax, Refined.

	Pounds.	Dollars
1914	4,522	641
1915	2,265	314

Not stated prior to 1914.

Soda, Chlorate of.

	Pounds.	Dollars.
1911	55	2
1912	140	22
1912	50	10
1914	469	84
1915	62	6

Soda, Crystal Carbonate of.

	Pounds.	Dollars.
1911	305,144	4,235
1912	354,600	5,616
1913	169,174	2,928
1914	307,488	3,323
1915	144,452	2,748

Soda, Cyanide of.

	Pounds.	Dollars.
1914	7,856,611	1,120,789
1915	6,187,418	955,907

Not stated prior to 1914.

Soda, Hydrate of, or Caustic.

	Pounds.	Dollars.
1911	2,984,280	73,968
1912	930,616	28,937
1913	671,480	25,364
1914	665,320	23,914
1915	444,185	19,318

Soda, Hyposulphite of.

	Pounds.	Dollars.
1911	29,537	612
1912	8,535	277
1913	7,299	228
1914	926,135	128,828
1915	1,855,223	268,693

Soda, Nitrate of.

	Tons.	Dollars.
1911	546,394	17,101,155
1912	481,786	15,427,904
1913	586,315	20,713,375
1914	554,048	17,926,116
1915	575,371	16,240,510

Soda, Nitrite of.

	Pounds.	Dollars.
1911	477,707	21,205
1912	974,667	47,390
1913	1,269,544	57,595
1914	1,845,379	76,813
1915	1,696,567	74,267

Soda, Phosphate of.

	Pounds.	Dollars.
1911	43,868	750
1912	.....	.....
1913	30	14
1914	1,364,789	24,975
1915	485,300	7,765

Soda, Prussiate of, Yellow.

	Pounds.	Dollars.
1911	1,196,661	66,971
1912	1,646,344	90,654
1913	1,887,369	118,475
1914	2,295,724	171,834
1915	1,529,938	120,477

Soda, Sal, or Soda Crystals.

	Pounds.	Dollars.
1911	214,419	11,713
1912	253,634	2,020
1913	128,027	1,010
1914	163,026	1,274
1915	104,800	606

Soda, Silicate of.

	Pounds.	Dollars.
1911	1,254,721	11,713
1912	933,236	8,870
1913	1,032,113	9,400
1914	1,046,569	10,881
1915	1,587,902	16,292

Soda, Sulphid of.

	Pounds.	Dollars.
1911	456,054	6,279
1912	722,980	10,456
1913	951,664	13,068
1914	2,529,911	36,383
1915	1,263,366	18,228

Soda, Sulphite of.

	Pounds.	Dollars.
1911	987,403	14,810
1912	354,232	4,860
1913	27,152	400
1914	382,540	5,627
1915	165,594	4,316

Sponges.

		Dollars.
1911	.....	256,479
1912	.....	311,547
1913	.....	289,909

Stated separately after 1913.

Sponges, Not Advanced by Chemical Process.

		Dollars.
1914	.....	279,211
1915	.....	334,252

Sponges, Bleached and Advanced by Chemical Process.

		Dollars.
1914	.....	38,306
1915	.....	42,042

Starch.

	Pounds.	Dollars.
1911	8,401,899	274,290
1912	15,131,654	458,359
1913	15,179,711	429,703

Stated separately after 1913.

Starch, Potato.

	Pounds.	Dollars.
1911	7,729,384	202,628
1912	14,016,382	405,336
1913	14,180,856	375,713
1914	13,934,741	233,661
1915	10,941,257	253,859

Starch, Soluble or Chemically Treated.

	Pounds.	Dollars.
1911	.....	.....
1912	407,773	15,356
1913	321,071	13,345
1914	1,697,392	54,694
1915	569,297	21,559

Starch, All Others.

	Pounds.	Dollars.
1911	672,315	33,349
1912	707,300	37,667
1913	677,785	40,645
1914	962,314	52,160
1915	952,924	52,537

Stearin, Oleo.

	Pounds.	Dollars.
1911	5,708,462	591,072
1912	4,912,710	448,959
1913	9,540,347	967,000
1914	5,679,535	497,973
1915	2,644,490	266,661

Steel Wool, or Shavings.

	Pounds.	Dollars.
1911	99,982	13,665
1912	35,844	7,021
1913	41,436	5,177
1914	27,113	3,698
1915	17,059	2,139

Strontia, Oxide of.

		Dollars.
1911	.....	44
1912	.....	.....
1913	.....	474
1914	.....	1,963
1915	.....	7,288

Strychnia or Strychnine, and Its Combination with Acids Not Subject to Duty.

	Ounces.	Dollars.
1911	145	144
1912	305	252
1913	532	377
1914	17,419	5,403
1915	26,967	11,449

Sulphur Ore as Pyrites or Sulphuret of Iron Containing Not in Excess of 25 Per Cent. Sulphur.

	Tons.	Dollars.
1911	893,487	3,108,060
1912	1,094,049	3,906,145
1913	966,575	4,112,057
1914	846,905	3,753,879
1915	875,949	4,139,649

Sulphur or Brimstone, Crude.

	Tons.	Dollars.
1911	23,480	409,990
1912	25,545	483,754
1913	19,258	374,024
1914	20,236	346,875
1915	25,842	442,975

Sulphur, Lac or Precipitated.

	Pounds.	Dollars.
1911	130,633	8,093
1912	150,932	9,670
1913	715,876	13,723
1914	233,896	13,636
1915	208,368	13,187

Sulphur, Refined.

	Tons.	Dollars.
1911	999	24,072
1912	1,393	35,448
1913	1,742	41,626
1914	1,523	38,634
1915	1,296	36,275

Sulphur, Sublimed or Flowers of.

	Tons.	Dollars.
1911	969	27,296
1912	3,921	87,062
1913	6,104	122,093
1914	599	15,841
1915	950	31,202

Sumac, Unground.

	Pounds.	Dollars.
1911	678,098	13,587
1912	576,869	9,461
1913	621,366	12,420
1914	1,335,596	32,238
1915	1,258,204	32,613

Sumac, Ground.

	Pounds.	Dollars.
1911	11,571,708	215,208
1912	12,642,129	238,887
1913	14,112,112	289,255
1914	9,678,719	231,580
1915	12,048,917	294,434

Sumac, Extract.

	Pounds.	Dollars.
1911	987,348	36,025
1912	1,380,733	46,551
1913	1,370,835	44,588
1914	1,463,297	59,022
1915	727,449	35,066

Talcum, Ground, Etc.

	Pounds.	Dollars.
1911	12,653,335	82,727
1912	20,465,942	117,094
1913	23,660,095	122,623
1914	32,498,096	173,023
1915	30,434,850	187,871

Talcum Steatite and French Chalk, Crude.

	Pounds.	Dollars.
1914	2,807,974	23,309
1915	3,478,711	15,322

Not stated prior to 1914.

Tallow.

	Pounds.	Dollars.
1911	984,383	81,640
1912	349,381	25,703
1913	490,505	41,710
1914	3,371,833	231,924
1915	12,634,594	823,958

Tanks, or Vessels, Cylindrical or Tubular, for Holding Gas Liquids or Other Material.

		Dollars.
1911	.....	462,025
1912	.....	427,607
1913	.....	499,031
1914	.....	459,842
1915	.....	226,911

Tapioca, Tapioca Flour, Cassava or Cassady.

	Pounds.	Dollars.
1911	60,915,112	1,396,198
1912	52,493,313	1,499,897
1913	71,356,085	1,935,169
1914	71,304,728	1,590,614
1915	60,080,060	1,324,184

Tar and Pitch of Wood.

	Barrels.	Dollars.
1911	1,759	10,448
1912	677	6,227
1913	178	2,777
1914	561	7,946
1915	129	1,551

Tartaric of Soda or Potassa, or Rochelle Salts.

	Pounds.	Dollars.
1911	78,257	9,035
1912	86,447	11,270
1913	158,115	16,927
1914	186,305	23,419
1915	253,699	19,244

Tea, Impure, Waste, Siftings or Sweepings for Manufacturing Purpose.

	Pounds.	Dollars.
1911	3,735,889	94,302
1912	5,994,507	161,540
1913	7,168,410	215,938
1914	5,213,956	178,302
1915	4,739,208	153,360

Terpin Hydrate.

	Pounds.	Dollars.
1914	6,929	1,020
1915	4,477	657

Not stated prior to 1914.

Terra Alba, Not Made from Gypsum or Plaster Rock.

		Dollars.
1911	.....	61
1912	.....	.....
1913	.....	.....
1914	.....	97
1915	.....	602

Thorium, Nitrate of

	Pounds.	Dollars.
1911	118,201	237,212
1912	118,171	230,395
1913	112,105	212,283
1914	144,413	309,260
1915	78,516	186,385

Thorium, Oxide and Other Salts of.

	Pounds.	Dollars.
1914	2,465	4,075
1915	82	359

Not stated prior to 1914.

Thymol.

	Pounds.	Dollars.
1914	19,045	24,765
1915	4,772	12,921

Not stated prior to 1914.

Tin, Black, Oxide of, or Cassiterite.

	Pounds.	Dollars.
1911	76,558	8,920
1912	122,693	35,700
1913	82,983	18,536
1914	19,549	3,022
1915	49,068	10,798

Tin Foil.

		Dollars.
1911	.....	688
1912	.....	1,634
1913	.....	430
1914	.....	649
1915	.....	1,216

Tonka Beans.

	Pounds.	Dollars.
1911	23,218	27,616
1912	91,024	201,131
1913	783,888	1,140,409
1914	545,156	677,195
1915	132,119	95,222

Turmeric.

		Dollars.
1911	.....	41,609
1912	.....	32,342
1913	.....	33,735
1914	.....	22,978
1915	.....	10,145

Turpentine, Spirits of.

	Gallons.	Dollars.
1911	204,821	108,278
1912	61,910	24,780
1913	56,457	19,295
1914	72,679	28,818
1915	13,680	5,095

Turpentine, Venice.

	Pounds.	Dollars.
1911	112,053	20,702
1912	83,362	9,816
1913	60,678	9,169
1914	112,010	17,434
1915	20,904	3,172

Ultramarine, Dry, in Pulp or Mixed with Water.

	Pounds.	Dollars
1911	685,933	63,817
1912	745,091	66,435
1913	695,938	62,259
1914	901,203	78,392
1915	641,381	62,715

Umber, Crude, Not Powdered, Washed or Pulverized.

	Pounds.	Dollars.
1911	2,557,313	13,265
1912	2,962,166	13,377
1913	5,256,077	29,391
*1914	1,069,059	7,138

*Covers period July 1 to October 3, 1913, only. Stated as "Umber and Umber Earths" after October 3, 1913.

Umber, Powdered, Washed or Pulverized.

	Pounds.	Dollars.
1911	492,331	6,372
1912	762,772	11,283
1913	817,509	11,217
*1914	151,713	2,478

*Covers period July 1 to October 3, 1913, only. Stated as "Umber and Umber Earths" after October 3, 1913.

Umber, Ground in Oil or Water.

	Pounds.	Dollars.
1911	6,780	444
1912	5,463	399
1913	6,085	380
*1914	2,538	156

*Covers period July 1 to October 3, 1913, only. Stated as "Umber and Umber Earths" after October 3, 1913.

Umber and Umber Earths.

	Pounds.	Dollars.
1914	3,381,919	25,798
1915	7,225,537	36,128

Included in the three preceding classes prior to 1914.

Uranium, Oxide and Salts of.

		Dollars.
1911	.....	12,651
1912	.....	15,024
1913	.....	21,435
1914	.....	5,782
1915	.....	1,969

Valonia.

	Pounds.	Dollars.
1911	.....	207,088
*1912	1,196,591	24,680
1913	5,295,762	79,610
1914	7,654,656	116,406
1915	6,352,190	88,061

*Quantity not stated prior to 1912.

Vanilla Beans.

	Pounds.	Dollars.
1911	1,140,640	1,953,328
1912	841,639	2,025,153
1913	1,049,617	2,641,574
1914	694,531	1,739,674
1915	749,146	1,839,995

Vanillin.

	Ounces.	Dollars.
1911	140	34
1912	.....	.....
1913	880	171
1914	33,668	6,446
1915	451	98

Varnish, Gold Size, or Japan.

		Dollars.
1914	.....	8,706
1915	.....	10,228

Not stated prior to 1914.

Varnish Spirit.

	Gallons.	Dollars.
1911	7,319	9,691
1912	5,272	16,827
1913	1,475	4,078
1914	10,127	24,329
1915	581	1,937

Varnish, All Other.

	Gallons.	Dollars.
1911	28,641	52,284
1912	24,312	48,853
1913	25,093	51,710
1914	16,888	31,032
1915	27,943	51,791

Venetian Red.

	Pounds.	Dollars.
1911	2,350,303	25,242
1912	2,228,593	18,438
1913	2,989,104	23,649
1914	3,858,611	33,077
1915	2,478,959	20,677

Verdigris, Acetate and Sub-Acetate of Copper.

	Pounds.	Dollars.
1911	86,010	6,608
1912	211,339	4,973
1913	55,465	7,053
1914	19,009	2,530
1915	17,569	2,491

Vermilion Reds.

	Pounds.	Dollars.
1911	96,141	63,040
1912	72,076	38,838
1913	85,337	44,753
1914	72,881	34,379
1915	95,659	58,097

Wafers, Unleavened, or Not Edible.

		Dollars.
1911	.....	32,197
1912	.....	29,598
1513	.....	28,564
1914	.....	32,816
1915	.....	26,656

Wash Blue Containing Ultramarine.

	Pounds.	Dollars.
1911	129,800	13,786
1912	112,224	14,299
1913	97,220	13,332
1914	*	12,906
1915	.....	6,485

*Quantity not stated after 1913.

Wax, Mineral.

	Pounds.	Dollars.
1911	5,809,416	481,744
1912	5,508,892	440,925
1913	6,440,878	507,656
1914	7,974,157	537,684
1915	6,284,757	401,500

Wax, Vegetable.

	Pounds.	Dollars.
1911	4,188,179	836,021
1912	4,564,928	1,080,198
1913	5,542,474	1,152,738
1914	4,336,276	1,043,337
1915	5,388,398	999,535

Whalebone, Unmanufactured.

	Pounds.	Dollars.
1911	.....	91,435
1912	18,251	44,587
1913	8,993	12,686
1914	9,624	11,781
1915	40,088	68,262

White Lead, and All Pigments Containing Lead.

	Pounds.	Dollars.
1911	650,915	38,878
1912	713,370	46,920
1913	678,078	46,527
1914	656,884	44,436
1915	514,876	35,743

Whiting and Paris White, Dry.

	Pounds.	Dollars.
1911	4,656,958	18,758
1912	3,729,155	14,578
1913	3,536,747	14,032
1914	2,361,605	10,453
1915	5,387,038	15,705

Wicking, Lamp, Stove or Candle, Made of Cotton or Other Vegetable Fiber.

	Pounds.	Dollars.
1911	58,970	18,269
1912	52,492	17,292
1913	44,653	13,771
1914	47,208	15,988
1915	37,932	11,758

Witherite.

	Pounds.	Dollars.
1911	4,254,068	33,790
1912	2,205,896	16,476
1913	2,109,842	15,224
1914	1,223,926	7,927
1915	838,292	6,674

Wood Flour.

	Pounds.	Dollars.
1911	7,348,617	35,438
1912	6,365,375	30,802
1913	11,795,852	62,447
1914	15,171,972	84,751
1915	11,482,934	60,131

Zinc Bearing Ores, Including Calamine.

	Tons, gross weight.	Zinc contents, pounds.	Dollars.
1911	29,542	22,407,108	391,872
1912	6,244	3,769,253	79,464
1913	27,481	25,214,528	526,173
1914	14,402	11,762,861	169,986
1915	17,341	14,259,176	321,135

Zinc, Chloride of.

	Pounds.	Dollars.
1911	1,311,185	34,978
1912	1,182,441	33,133
1913	1,252,319	37,078
1914	789,296	23,503
1915	194,250	5,805

Zinc Dust.

	Pounds.	Dollars.
1911	4,269,120	204,836
1912	3,705,742	202,740
1913	5,615,766	317,492
1914	4,788,433	223,775
1915	2,278,533	132,822

Zinc, Oxide, Dry.

	Pounds.	Dollars.
1911	5,262,770	331,337
1912	4,842,948	310,362
1913	6,148,120	389,485
*1914	1,408,162	88,410

*Figures are for July 1 to October 3, 1913. Stated separately after October 3, 1913.

Zinc, Oxide of, Ground Dry.

	Pounds.	Dollars.
1914	5,315,807	309,106
1915	2,565,434	148,143

Zinc, Oxide of, Ground in or Mixed with Oil or Water.

	Pounds.	Dollars.
1914	202,571	21,595
1915	156,451	11,525

Zinc Sulphate.

	Pounds.	Dollars.
1911	45,423	2,042
1912	76,890	2,983
1913	22,778	817
1914	107,065	2,176
1915	68,940	1,027

Zinc, Sulphide of, White.

	Pounds.	Dollars.
1911	5,409,529	145,201
1912	6,325,072	157,921
1913	5,163,642	144,812
1914	1,318,999	42,130
1915	283,356	8,979

Copper, Rods and Wire.

	Pounds.	Dollars.
1913	41,450,901	7,217,166
1914	32,503,236	5,298,685
1915	53,505,157	8,004,628

Not separately stated prior to 1913.

Copper, Sulphate of.

	Pounds.	Dollars.
1911	6,318,042	269,684
1912	5,401,928	287,481
1913	5,052,680	262,561
1914	7,375,775	350,007
1915	10,238,808	445,580

Figures for 1911 are for six months only, January to June, inclusive.

Cork, Manufactures of.

		Dollars.
1911	.....	168,267
1912	.....	294,046
1913	.....	339,436
1914	.....	.....
1915	.....	211,795

Dyes and Dyestuffs.

		Dollars.
1911	.....	325,519
1912	.....	314,804
1913	.....	347,656
1914	.....	356,919
1915	.....	1,775,925

Egg Yolks, Canned Eggs, Etc.

		Dollars.
1911	.....	5,353
1912	.....	29,541
1913	.....	67,854
1914	.....	47,968
1915	.....	88,865

Emery and Other Abrasive Wheels.

		Dollars.
1913	.....	809,720
1914	.....	665,778
1915	.....	736,879

Not separately stated prior to 1913.

Fertilizers, Phosphate Rock, Ground or Unground, Not Acidulated.

	Tons.	Dollars.
1911	1,208,340	9,068,839
1912	1,212,957	8,982,934

Stated separately after 1912; see following classes.

Fertilizers, Phosphate High-Grade Hard Rock.

	Tons.	Dollars.
1913	494,200	4,942,000
1914	475,335	4,753,350
1915	46,005	460,050

Fertilizers, Phosphate Rock, Land Pebble.

	Tons.	Dollars.
1913	777,898	4,577,962
1914	1,000,630	5,857,969
1915	222,472	1,276,759

Fertilizers, Phosphate Rock, All Other.

	Tons.	Dollars.
1913	794	4,127
1914	1,906	6,516
1915	857	5,888

Fertilizers, All Other.

	Tons.	Dollars.
1911	54,251	1,652,293
1912	62,562	1,890,794
1913	74,834	1,875,999
1914	61,601	1,360,903
1915	89,204	2,128,190

Flavoring Extracts and Fruit Juices.

		Dollars.
1911	.....	136,354
1912	.....	173,402
1913	.....	133,990
1914	.....	106,892
1913	.....	136,742

Fly Paper.

		Dollars.
1911	.....	177,917
1912	.....	181,200
1913	.....	178,175
1914	.....	217,857
1915	.....	115,921

German Silver.

		Dollars.
1911	.....	41,073
1912	.....	56,319
1913	.....	65,382
1914	.....	38,691
1915	.....	30,699

Ginseng.

	Pounds.	Dollars.
1911	153,960	1,088,202
1912	155,308	1,110,301
1913	221,901	1,663,731
1914	224,005	1,832,686
1915	103,184	919,931

Glass Bottles, Vials, Demijohns, Carboys and Jars.

		Dollars.
1913	.....	808,327
1914	.....	711,353
1915	.....	772,427

Not separately stated prior to 1913.

Glass, Cylinder, Crown and Common Window.

	Boxes (50 sq. ft.)	Dollars.
1911	.....	121,339
1912	.....	114,109
1913	.....	434,361
1914	.....	311,339
1915	489,288	1,443,113

Figures for 1911 are for six months only, January to June, inclusive. Quantity not stated prior to 1915.

Glass, Plate.

	Square feet.	Dollars.
1911	88,596	29,683
1912	222,206	50,754
1913	165,129	58,830
1914	74,867	35,767
1915	2,730,046	831,727

Figures for 1911 are for six months only, January to June, inclusive.

Glass, All Other.

		Dollars.
1911	.....	3,095,369
1912	.....	3,329,290
1913	.....	2,892,124
1914	.....	2,671,164
1915	.....	2,511,450

Glucose.

	Pounds.	Dollars.
1911	137,461,782	2,590,220
1912	126,395,045	2,911,736
1913	158,365,604	3,682,871
1914	162,680,378	3,786,284
1915	125,434,878	3,103,561

Glue.

	Pounds.	Dollars.
1911	2,307,960	242,755
1912	3,059,052	314,909
1913	2,544,932	276,619
1914	2,381,770	258,811
1915	2,874,225	298,136

Domestic Exports from the United States

FISCAL YEARS ENDING JUNE 30.

Acid, Sulphuric.

	Pounds.	Dollars.
1911	5,777,442	60,537
1912	7,002,444	71,877
1913	9,790,532	89,783
1914	12,131,750	125,892
1915	46,771,510	516,436

Acids, All Other.

		Dollars.
1911	.....	319,900
1912	.....	364,207
1913	.....	364,347
1914	.....	357,035
1915	.....	2,611,741

Alcohol, Wood.

	Proof gallons.	Dollars.
1911	1,962,336	881,991
1912	1,565,368	685,565
1913	1,837,173	788,143
1914	1,598,776	652,486
1915	944,374	438,846

Alcohol, All Other, Including Pure, Neutral or Cologne Spirit.

	Proof gallons.	Dollars.
1911	35,231	19,820
1912	25,440	11,336
1913	151,232	58,346
1914	187,845	67,728
1915	200,435	108,985

Asphaltum and Manufactures of.

		Dollars.
1911	.....	868,352
1912	.....	1,170,882
1913	.....	1,640,027
1914	.....	1,493,433

Stated separately after 1914.

Asphaltum, Unmanufactured.

	Tons.	Dollars.
1911	24,221	565,581
1912	32,001	707,997
1913	54,560	1,164,486
1914	49,831	1,131,086
1915	28,553	616,240

Asphaltum, Manufactured.

		Dollars.
1911	.....	302,971
1912	.....	462,885
1913	.....	473,541
1914	.....	362,347
1915	.....	400,154

Baking Powder.

	Pounds.	Dollars.
1911	2,187,727	631,690
1912	2,615,138	750,748
1913	2,844,575	844,825
1914	2,725,964	790,274
1915	3,376,780	881,879

Bark, Extract of, for Tanning.

		Dollars.
1911	.....	336,600
1912	.....	404,024
1913	.....	524,063
1914	.....	639,941
1915	.....	2,226,457

Bark, for Tanning.

	Tons.	Dollars.
1911	527	19,935
1912	2,095	57,319
1913	1,683	46,499
1914	1,212	26,939
1915	825	21,424

Beeswax.

	Pounds.	Dollars.
1911	101,735	31,404
1912	109,478	32,556
1913	116,296	33,151
1914	96,215	27,292
1915	181,328	57,971

Bones.

		Dollars.
1913	.....	77,576
1914	.....	47,651
1915	.....	34,796

Included in "Bones, Hoofs, Horns, Etc.," prior to 1913.

Bones, Hoofs, Horn, Etc.

		Dollars.
1912	.....	162,009

Not stated after 1912.

Calcium Carbide.

	Pounds.	Dollars.
1911	26,607,804	735,940
1912	32,307,802	936,699
1913	33,419,375	990,027
1914	32,845,649	962,040
1915	35,772,867	1,097,952

Candles.

	Pounds.	Dollars.
1911	3,194,492	291,417
1912	2,782,439	255,075
1913	2,595,912	246,274
1914	3,047,736	283,018
1915	4,230,026	417,345

Celluloid and Manufactures of.

		Dollars.
1911	.....	1,694,214
1912	.....	2,034,371
1913	.....	1,639,046
1914	.....	1,387,341
1916	.....	722,850

Cement, Hydraulic.

	Barrels (380 lbs.)	Dollars.
1911	2,971,274	4,349,290
1912	3,423,747	5,087,040
1913	3,999,715	5,822,107
1914	2,391,453	2,362,282
1915	2,361,451	3,241,686

Chalk.

		Dollars.
1911	.....	122,490
1912	.....	56,414
1913	.....	49,478
1914	.....	40,154
1915	.....	51,175

Charcoal.

		Dollars.
1911	.....	27,317
1912	.....	45,726
1913	.....	73,030
1914	.....	81,997
1915	.....	105,009

Chewing Gum.

		Dollars.
1911	.....	89,129
1912	.....	164,311
1913	.....	186,944
1914	.....	178,630
1915	.....	281,433

Coal Tar.

	Barrels.	Dollars.
1911	90,829	121,375
1912	22,076	59,390
1913	121,168	152,273
1914	22,150	43,145
1915	21,317	39,647

Copper, Pigs, Ingots, and Bars.

	Pounds.	Dollars.
1913	740,340,312	120,665,914
1914	864,602,721	128,137,408
1915	881,773,537	81,946,522

Not separately stated prior to 1913.

Copper, Plates and Sheets.

	Pounds.	Dollars.
1913	61,050,138	10,028,960
1914	71,855,735	10,690,504
1915	34,355,789	5,103,778

Not separately stated prior to 1913.

Grape Sugar.

	Pounds.	Dollars.
1911	37,089,449	792,089
1912	44,761,214	1,066,161
1913	41,783,642	970,023
1914	36,850,496	799,635
1915	33,027,030	781,672

Grease and Soap Stock.

		Dollars.
1911	.....	5,177,581

Stated separately after 1911; see following classes.

Grease, Lubricating.

		Dollars.
1912	.....	2,193,363
1913	.....	2,339,015
1914	.....	2,394,918
1915	.....	2,384,395

Grease, Soap Stock and Other.

		Dollars.
1912	.....	4,486,329
1913	.....	4,844,342
1914	.....	5,046,959
1915	.....	4,266,097

Hair, Unmanufactured.

		Dollars.
1913	.....	1,449,157
1914	.....	1,085,038
1915	.....	1,402,189

Honey.

		Dollars.
1911	.....	81,649
1912	.....	212,652
1913	.....	182,252
1914	.....	135,669
1915	.....	114,038

Hoofs, Horns, Horn Tips, Strips and Waste.

		Dollars.
1913	.....	102,705
1914	.....	61,180
1915	.....	16,182

Included in "Bones, Hoofs, Horns, Etc.," prior to 1913.

Hops.

	Pounds.	Dollars.
1911	13,104,774	2,130,972
1912	12,190,663	4,648,505
1913	17,591,195	4,764,713
1914	24,262,896	6,953,529
1915	16,210,443	3,848,020

Iron, Pig.

	Tons.	Dollars.
1911	152,807	2,475,696
1912	185,985	2,658,428
1913	287,022	4,141,210
1914	201,995	2,859,830
1915	130,594	2 071,308

Lard.

	Pounds.	Dollars.
1911	476,107,837	52,509,217
1912	532,255,865	52,090,441
1913	519,023,384	58,187,320
1914	481,457,792	54,402,911
1915	475,531,908	52,440,133

Lard Compounds and Other Substitutes for Lard.

	Pounds.	Dollars.
1911	73,754,400	7,070,967
1912	62,522,888	5,183,689
1913	67,456,832	5,915,750
1914	58,303,504	5,489,139
1915	69,980,614	6,045,752

Lard, Neutral.

	Pounds.	Dollars.
1912	62,317,909	6,655,909
1913	44,777,692	5,129,899
1914	29,323,786	3,270,236
1915	26,021,054	3,022,321

Lead Pigs and Bars.

	Pounds.	Dollars.
1915	193,024,221	7,926,604

Not stated prior to 1915.

Lime.

	Barrels.	Dollars.
1911	183,597	138,958
1912	228,014	175,384
1913	284,685	214,545
1914	285,749	200,437
1915	169,078	117,644

Lime, Acetate.

	Pounds.	Dollars.
1911	70,191,256	1,606,979
1912	69,235,415	1,592,785
1913	80,557,858	2,221,427
1914	68,160,224	1,560,933
1915	24,673,247	486,405

Malt.

	Bushels.	Dollars.
1911	117,882	103,099
1912	76,696	86,323
1913	370,957	300,480
1914	330,608	270,059
1915	2,153,000	2,301,535

Medical and Surgical Instruments.

		Dollars.
1913	.....	222,650
1914	.....	206,421
1915	.....	560,741

Not stated prior to 1913.

Medicines, Patent or Proprietary.

		Dollars.
1911	.....	6,783,020
1912	.....	7,541,650
1913	.....	7,110,493
1914	.....	6,721,978
1915	.....	7,130,379

Metal Polish.

		Dollars.
1911	.....	135,390
1912	.....	139,608
1913	.....	127,898
1914	.....	162,504
1915	.....	167,277

Mucilage.

		Dollars.
1911	.....	24,127
1912	.....	29,739
1913	.....	26,238
1914	.....	26,182
1915	.....	14,504

Oakum.

	Pounds.	Dollars.
1911	1,222,109	52,696
1912	1,454,156	65,467
1913	1,458,128	66,614
1914	1,260,681	57,205
1915	1,018,286	51,081

Oil Cake, Corn.

	Pounds.	Dollars.
1911	83,384,870	1,115,986
1912	72,490 021	1,035,291
1913	76 262,846	1,131,330
1914	59,030,623	909,407
1915	44,026,125	798,206

Oil Cake, Cottonseed.

	Pounds.	Dollars.
1911	804,596,955	10,153,475
1912	1,293,690,138	17,325,858
1913	1,128,092,367	15,225,798
1914	799,974,252	11,007,441
1915	1,222,699,889	15,432,126

Oil Cake, Flaxseed or Linseed.

	Pounds.	Dollars.
1911	559,674,653	8,361,666
1912	596,114,536	9,735,022
1913	838,119,654	12,982,422
1914	662,868,639	9,650,379
1915	524,794,434	9,048,061

Oil Cake, All Other.

	Pounds.	Dollars.
1912	8,924,033	132,534
1913	6,886,270	104,701
1914	8,484,936	100,445
1915	9,900,878	126,414

Not stated prior to 1912.

Oilcake Meal, Cottonseed.

	Pounds.	Dollars.
1915	256,365,126	3,474,244

Not stated prior to 1915.

Oil, Animal, Fish, Except Whale.

	Gallons.	Dollars.
*1911	42,058	17,040
1912	1,198,835	361,138
1913	1,901,953	501,227
1914	448,366	125,575
1915	88,880	29,802

*Figures for 1911 are for six months only, January to June, inclusive.

Oil, Animal, Lard.

	Gallons.	Dollars.
*1911	120,094	90,724
1912	207,337	147,796
1913	154,983	113,665
1914	110,199	87,364
1915	184,019	111,637

*Figures for 1911 are for six months only, January to June, inclusive.

Oil, Animal, Oleo.

	Pounds.	Dollars.
*1911	138,686,906	13,658,762
1912	126,467,124	13,434,018
1913	92,849,757	10,866,253
1914	97,017,065	10,156,665
1915	80,481,496	9,341,188

*Includes "neutral lard" prior to 1911.

Oils, Animal, Not Otherwise Specified.

	Gallons.	Dollars.
1911	1,019,478	681,096
1912	1,019,412	754,342
1913	1,603,325	970,717
1914	891,035	609,294
1915	559,197	405,635

Oils, Mineral, Crude.

	Gallons.	Dollars.
1911	185,190,761	5,417,513
1912	208,110,365	6,811,367
1913	242,935	7,750,767
1914	146,477,342	6,812,672
1915	152,514,129	4,911,634

Oil, Mineral, Illuminating.

	Gallons.	Dollars.
1911	1,022,311,042	57,476,494
1912	1,044,049,848	59,845,823
1913	1,048,894,297	66,189,265
1914	1,157,283,310	74,500,162
1915	886,316,740	53,607,082

Oil, Mineral, Lubricating and Heavy Paraffin.

	Gallons.	Dollars.
1911	173,642,495	22,061,199
1912	202,125,197	25,970,271
1913	213,671,499	29,574,410
1914	196,884,696	27,852,959
1915	214,429,099	28,499,786

Oils, Mineral, Naphthas, Etc., Gasoline.

	Gallons.	Dollars.
*1913	81,698,917	10,831,490
1914	151,611,537	21,699,475
1915	156,860,666	17,903,317

*Not separately stated prior to 1913.

Oils, Mineral, Naphthas, Etc., All Other.

	Gallons.	Dollars.
1913	101,821,572	14,269,878
1914	46,840,730	5,653,210
1915	94,335,128	10,296,928

Not separately stated prior to 1913.

Oils, Mineral, Residuum, Including Tar and All Other from Which Light Bodies Have Been Distilled.

	Gallons.	Dollars.
1911	123,398,478	3,694,925
1912	168,339,478	4,386,902

Stated separately after 1912; see following classes.

Oils, Mineral, Residuum, Etc., Gas Oil and Fuel.

	Gallons.	Dollars.
1913	320,529,925	8,305,715
1914	475,143,205	13,747,863
1915	672,931,878	18,543,000

Oils, Mineral, Residuum, Etc., Gas Oil and Fuel for Vessels Engaged in Foreign Trade.

	Barrels.	Dollars.
1915	2,898,393	2,567,017

Not stated prior to 1915.

Oils, Mineral, Residuum, Etc., All Other.

	Gallons.	Dollars.
1913	27,513,508	496,237
1914	113,370,245	1,907,715
1915	9,952,970	230,552

Oil, Corn.

	Pounds.	Dollars.
1911	25,316,799	1,573,605
1912	23,866,146	1,526,931
1913	19,739,622	1,292,009
1914	18,281,576	1,307,204
1915	17,689,635	1,302,159

Oil, Cottonseed.

	Pounds.	Dollars.
1911	225,520,944	17,127,369
1912	399,470,073	24,089,223
1913	315,212,892	20,736,972
1914	192,963,079	13,843,179
1915	318,366,525	21,872,948

Oil, Linseed.

	Gallons.	Dollars.
1911	275,210	164,879
1912	246,965	208,591
1913	1,733,925	874,461
1914	229,198	134,540
1915	1,212,133	660,089

Oils, Vegetable, All Other Fixed or Expressed.

		Dollars.
1911	.....	292,757
1912	.....	339,391
1913	.....	420,368
1914	.....	338,956
1915	.....	1,198,852

Oil, Peppermint.

	Pounds.	Dollars.
1911	123,420	269,934
1912	135,740	422,631
1913	144,663	395,551
1914	117,809	397,050
1915	184,981	384,593

Oils, Vegetable, All Other, Volatile.

		Dollars.
1911	.....	377,588
1912	.....	322,164
1913	.....	325,040
1914	.....	230,557
1915	.....	413,104

Oleomargarine, Imitation Butter.

	Pounds.	Dollars.
1911	3,794,939	408,459
1912	3,692,425	372,567
1913	2,987,582	311,485
1914	2,532,821	263,453
1915	5,252,183	617,035

Paints, Dry Colors, Lamp Black.

		Dollars.
1911	.....	640,911
1912	.....	907,023
1913	.....	505,748
1914	.....	421,548
1915	.....	368,825

Paints, Dry Colors, All Other.

		Dollars.
1913	.....	785,907
1914	.....	690,836
1915	.....	1,072,736

Not stated prior to 1913.

Paints, Ready Mixed.

	Gallons.	Dollars.
1913	961,945	1,211,580
1914	852,910	1,056,335
1915	703,494	884,700

Not stated prior to 1913.

Paints, White Lead.

	Pounds.	Dollars.
1913	15,736,488	944,205
1914	16,845,154	1,013,506
1915	19,660,810	1,070,646

Not stated prior to 1913.

Paints Not Elsewhere Specified, Including Crayons.

		Dollars.
1911	.....	3,604,384
1912	.....	3,864,997
1913	.....	1,802,049
1914	.....	1,779,863
1915	.....	1,527,494

Paraffin and Paraffin Wax.

	Pounds.	Dollars.
1911	218,502,330	7,378,736
1912	249,502,699	8,123,486
1913	290,678,861	9,679,273
1914	186,357,728	6,516,338
1915	330,374,036	10,589,843

Paste.

		Dollars.
1911	.....	45,337
1912	.....	56,790
1913	.....	69,052
1914	.....	68,831
1915	.....	91,522

Perfumeries, Cosmetics and All Toilet Preparations.

		Dollars.
1911	.....	1,069,359
1912	.....	1,147,639
1913	.....	1,441,982
1914	.....	1,620,872
1915	.....	1,715,059

Petroleum Jelly.

		Dollars.
1913	.....	536,637
1914	.....	661,889
1915	.....	838,842

Not stated prior to 1913.

Plaster of Paris.

		Dollars.
1911	.....	16,641
1912	.....	20,830
1913	.....	15,723
1914	.....	14,799
1915	.....	12,353

Platinum, Unmanufactured.

	Ounces.	Dollars.
1911	495	17,269
1912	1,710	70,752
1913	1,290	57,077
1914	273	12,977
1915	1,397	53,266

Platinum, Manufactures of.

		Dollars.
1911	.....	88,029
1912	.....	108,105
1913	.....	126,013
1914	.....	71,172
1915	.....	27,101

Plumbago or Graphite, Unmanufactured.

	Pounds.	Dollars.
1911	4,021,128	290,915
1912	3,935,884	285,597
1913	4,503,560	321,679
1914	5,276,880	387,075
1915	2,324,081	152,446

Plumbago or Graphite, Manufactures of.

		Dollars.
1911	.....	116,508
1912	.....	167,299
1913	.....	175,583
1914	.....	269,499
1915	.....	368,333

Quicksilver.

	Pounds.	Dollars.
1911	34,005	20,610
1912	24,231	14,817
1913	40,410	21,885
1914	64,190	32,241
1915	222,927	155,089

Roofing Felt.

		Dollars.
1911	.....	1,043,397
1912	.....	1,208,957
1913	.....	1,427,695
1914	.....	1,029,127
1915	.....	880,944

Surgical Appliances (Not Including Instruments).

		Dollars.
1913	.....	973,733
1914	.....	1,228,467
1915	.....	4,418,303

Not stated prior to 1913.

Roots, Herbs and Barks, Crude, Not Mixed.

		Dollars.
1911	.....	563,862
1912	.....	549,877
1913	.....	424,312
1914	.....	513,071
1915	.....	470,090

Rosin.

	Barrels.	Dollars.
1911	2,189,607	14,067,335
1912	2,474,460	16,462,850
1913	2,806,046	17,359,145
1914	2,417,950	11,217,316
1915	1,372,316	6,220,321

Salt.

	Pounds.	Dollars.
1911	102,032,616	329,255
1912	111,008,966	383,062
1913	128,035,915	441,573
1914	148,031,265	542,783
1915	165,619,366	616,132

Seed, Cotton.

	Pounds.	Dollars.
1911	13,224,347	209,944
1912	64,060,276	727,100
1913	24,048,647	328,988
1914	16,342,384	215,115
1915	6,314,439	94,237

Seed, Flax.

	Bushels.	Dollars.
1911	976	2,520
1912	4,323	12,160
1913	16,894	26,699
1914	365,546	328,988
1915	4,145	9,748

Soap, Toilet or Fancy.

		Dollars.
1911	.....	1,741,971
1912	.....	1,840,037
1913	.....	2,132,663
1914	.....	2,141,633
1915	.....	1,777,342

Soap, Except Toilet or Fancy.

	Pounds.	Dollars.
1911	47,581,259	2,305,010
1912	57,855,457	2,695,991
1913	51,292,554	2,493,904
1914	58,547,763	2,797,939
1915	63,367,750	3,080,957

Spermaceti.

	Pounds.	Dollars.
1911	37,002	9,700
1912	35,470	8,256
1913	216,629	44,744
1914	65,414	13,303
1915	167,385	21,522

Spices.

		Dollars.
1911	.....	58,989
1912	.....	74,023
1913	.....	92,962
1914	.....	84,427
1915	.....	76,297

Sponges.

	Pounds.	Dollars.
1911	217,313	209,311
1912	154,287	146,416
1913	205,864	177,059
1914	209,470	175,866
1915	117,618	109,635

Starch.

	Pounds.	Dollars.
1911	158,239,178	3,137,552
1912	83,644,749	1,965,401
1913	110,987,591	2,609,716
1914	76,713,779	1,825,230
1915	107,036,638	2,939,453

Sulphur or Brimstone, Crude.

	Tons.	Dollars.
1911	17,269	326,735
1912	41,269	784,349
1913	73,861	1,353,310
1914	110,022	2,018,724
1915	48,391	885,756

Tallow. (This is Beef Tallow.)

	Pounds.	Dollars.
1911	29,813,154	1,993,681
1912	39,451,419	2,388,046
1913	30,586,300	1,910,439
1914	15,812,831	1,002,011
1915	20,259,988	1,386,445

Tar, Turpentine and Pitch.

	Barrels.	Dollars.
1911	40,380	187,183
1912	50,107	223,002
1913	62,346	317,491
1914	251,352	568,891
1915	239,661	450,612

Tripoli.

		Dollars.
1912	.....	47,333

Not stated after 1912.

Spirits of Turpentine.

	Gallons.	Dollars.
1911	14,817,751	10,708,202
1912	19,599,241	10,069,135
1913	21,039,597	8,794,656
1914	18,990,704	8,095,958
1915	9,464,129	4,476,306

Varnish.

	Gallons.	Dollars.
1911	1,074,264	1,050,290
1912	1,114,413	1,118,004
1913	1,277,777	1,267,860
1914	1,069,501	1,058,864
1915	731,604	682,352

Washing Powder and Fluid.

	Pounds.	Dollars.
1911	3,476,704	176,079
1912	8,287,197	392,573
1913	9,923,700	458,742
1914	12,761,958	535,653
1915	14,695,317	635,476

Whalebone.

	Pounds.	Dollars.
1911	82,557	251,386
1912	49,074	121,609
1913	106,174	182,938
1914	35,034	58,165
1915	28,111	32,643

Zinc Dross.

	Pounds.	Dollars.
1911	8,674,999	348,955
1912	3,866,317	168,381
1913	102,569	3,271
1914	572,477	29,084
1915	10,361,840	557,247

Zinc Ore.

	Tons.	Dollars.
1911	15,211	600,853
1912	19,968	787,013
1913	17,308	687,680
1914	14,294	559,755
1915	3,345	138,071

Zinc, Oxide of.

	Pounds.	Dollars.
1911	27,866,979	999,161
1912	32,792,882	1,182,683
1913	31,045,147	1,164,589
1914	29,197,790	1,215,360
1915	37,012,696	1,780,856

Calendar Year Imports.

	1914 Quantity.	1914 Dollars.	1915 Quantity.	1915 Dollars.
Acids—				
Carbolic, lbs, free	6,920,150	393,611	2,055,790	126,092
Oxalic, lbs., dut	8,164,938	423,491	2,059,532	174,290
Alizarin and alizarin dyes, lbs., free	4,248,535	1,216,536	3,128,205	827,992
Ammonia—				
Muriate of, lbs., dut	7,841,546	395,456	2,542,592	134,255
Aniline salts—				
Dutiable, lbs	2,244,873	180,905	261,097	65,319
Asbestos—				
Unmanufactured, tons, free	64,166	1,407,758	83,541	1,981,483
Aluminum—				
Crude, scraps, etc., lbs., dut	16,241,340	2,729,383	8,534,834	1,511,988
Manufactures, dut	.....	1,308,036	.....	391,863
Asphaltum and bitumen, tons, free	124,214	682,748	123,436	680,357
Arsenic, lbs., free	4,709,372	165,266	3,573,624	154,517
Antimony matte, regulus or metal, lbs., dut	13,070,381	737,233	17,484,030	3,633,420
Argols or wine lees, lbs., dut	27,435,509	3,027,996	31,901,215	3,767,875
Barks—				
Cinchona or other from which quinine may be extracted, lbs., free	3,944,509	538,195	4,044,882	596,578
Quinia, sulphate of and all alkaloids or salts of cinchona bark, ozs., free	2,967,801	703,173	1,442,691	675,619
Bleaching powder, lbs., dut	34,539,934	332,792	7,564,473	102,570
Bones, hoofs and horns, unmanufactured, free	.....	1,173,795	.....	638,145
Bristles—				
Not sorted, bunched or prepared, lbs., free	67,580	23,122	48,767	3,536
Sorted, bunched or prepared, lbs., dut	3,453,018	3,171,186	3,522,505	3,350,801
Casein, lbs., free	9,905,675	644,216	7,656,680	514,206
Clays or earths—				
China clay or kaolin, tons, dut	288,858	1,908,407	186,414	1,151,551
All other, tons, dut	69,776	451,807	40,325	267,571
All other, tons, free	37,791	218,862	11,339	79,676
Coal-tar products—				
Colors or dyes, dut	.....	6,845,160	.....	2,396,594
Dead or creosote oils, gals, free	48,839,020	3,023,580	34,442,028	2,676,430
All other, free	.....	255,518	.....	288,395
Cocoa, crude, lbs., free	177,424,890	19,122,852	230,525,001	31,318,876
Cocoa and chocolate prepared or manufactured (except confectionery), lbs., dut	3,123,904	555,548	2,225,464	579,369
Cocoanut meat, broken or copra—				
Not shredded, desiccated or prepared, lbs., free	60,076,664	2,764,463	108,294,331	3,756,526
Shredded, desiccated or prepared, lbs., dut	8,412,485	642,856	4,447,177	289,188
Dyewood in a crude state—				
Logwood, tons, free	40,862	522,434	60,958	832,196
All other, tons, free	8,109	122,651	23,166	357,903
Extracts and decoctions for dyeing or tanning—				
Quebracho, free, lbs	114,326,433	3,100,378	82,182,141	3,145,819
Fertilizers—				
Ammonia sulphate, tons, free	74,121	4,475,603	32,477	1,934,625
Bone dust and bone ash, tons, free	36,022	800,672	21,322	540,197
Guano, tons, free	25,562	762,688	9,974	220,866
Kainit, tons, free	329,611	1,550,579	6,674	95,440
Manure salts, tons, free	168,426	1,842,049	13,947	207,674
Potash, n. e. s.—				
Muriate of, tons, free	168,509	5,740,893	57,744	2,297,149
Sulphate of, tons, free	36,264	1,568,704	11,544	963,399
All other substances used as fertilizers	.....	5,055,035	.....	2,922,914
Gelatine, unmanufactured, lbs., dut	2,541,464	749,267	2,613,250	820,968
Manufactures, of	.....	37,721	.....	70,373
Glass and glassware—				
Bottles, vials, demijohns (except blown), dut	.....	1,064,371	.....	657,299
Bottles, decanters, and other glassware, cut or ornamental, dut	.....	768,773	.....	361,546
Cylinder, crown and common window glass, unpolished, lbs., dut	34,888,782	1,316,902	2,808,891	283,002
Lenses, and all optical instruments (including spectacles), dut	.....	494,987	.....	172,963
Plate, cast, polished, unsilvered, sq. ft., dut	2,111,096	489,359	15,865	7,305
Plate or disks, rough cut or unwrought for optical instruments, free	.....	575,747	.....	387,331
All other, dut	.....	2,153,881	.....	1,035,599
Glue and glue size, lbs., dut	20,652,395	1,636,730	6,533,921	596,974
Glycerine, crude, lbs., dut	24,787,168	3,122,848	15,616,900	1,976,332
Grease and oils, n. e. s.—				
Sulphur oil or olive foots, lbs., free	13,045,410	852,063	10,950,237	777,951
All other, lbs., free	11,664,636	529,833	17,678,877	645,066
Gums—				
Camphor, crude, natural, lbs., dut	3,488,271	949,701	3,712,328	989,923
Camphor, refined and synthetic, lbs., dut	1,054,177	369,476	1,205,287	390,366
Chicle, lbs., dut	5,896,556	2,178,053	7,916,893	2,903,018
Copal, kauri and damar, lbs., free	28,647,148	2,963,467	32,227,509	2,772,833
Gambier or terra japonica, lbs., free	13,706,205	493,634	9,663,963	461,042
Shellac, lbs., free	19,636,790	3,629,819	26,845,107	3,010,290
All other, free	.....	1,172,008	.....	1,027,111
All other, dut	.....	827,988	.....	576,848
Human hair, unmanufactured—				
Uncleaned, lbs., dut	566,626	389,841	725,477	267,673
Manufactured, cleaned, dut	.....	181,005	.....	208,536
All other, dut	.....	87,311	.....	103,175
Indigo, natural and synthetic, lbs., free	7,927,151	1,188,795	7,333,953	4,078,428
Iodine, crude, lbs., free	463,333	951,308	612,926	1,332,387
Licorice root—				
Dutiable, lbs	103,224,650	1,871,863	51,049,615	1,244,763
Lime, citrate of, lbs., dut	4,358,752	725,262	6,310,327	1,113,569
Magnesite, calcined, not purified, lbs., free	241,165,822	1,297,835	55,146,407	399,866
Manganese, oxide and ore of, tons, free	283,294	2,024,120	320,782	2,633,286
Matches, friction or lucifer, dut	.....	931,399	83,986,988	2,826,754
Oil—				
Animal—				
Cod and codliver, gls, free	1,893,103	683,780	1,613,859	760,780
All other, gls., dut	1,459,139	463,538	1,243,318	411,773
Mineral—				
Crude, gls., free	710,351,077	10,023,097	761,852,180	10,387,553
Refined—				
Benzine, gasoline and naphtha, gls., free	12,751,279	1,120,633	1,146,678	38,756
All other, gls., free	1,344,553	357,000	706,840	137,319
Vegetable—				
Expressed—				
Chinese nut., gls., free	4,018,254	1,502,710	4,530,091	1,483,515
Cocoa butter or butterine, lbs., dut	1,244,144	348,516	24,561	7,866
Cocoanut, lbs., free	58,012,425	5,147,154	63,165,102	5,374,271
Cottonseed, gls., dut	16,016,557	869,207	11,675,427	488,241
Flaxseed or linseed, gls., dut	580,055	263,339	88,462	49,875
Peanut, dut., lbs	982,059	674,787	834,581	550,814
Olive, fit only for manufacturing, free	747,917	474,611	651,501	438,628
Olive, edible, gls., dut	6,780,936	8,421,499	6,872,969	8,781,438
Palm, lbs., free	49,092,150	3,155,054	54,399,130	2,169,208
Palm kernel, lbs., free	21,089,142	1,889,063	5,312,367	391,813
Rapeseed, gls., dut	1,489,544	732,303	1,545,739	857,302
Soya bean, lbs., free	12,554,948	657,231	21,335,213	931,791
All other, free	.....	15,551	.....	7,988
All other, dut	.....	325,693	.....	145,404
Distilled and essential—				
Lemon, lbs., dut	486,371	896,541	476,161	418,588
All other, dut	.....	2,062,724	.....	2,398,084
All other, free	.....	26,402	.....	11,864
Oleo stearine, lbs., free	4,029,057	348,483	1,718,473	153,987
Opium, containing 9 per cent. and over of morphia, lbs., dut	415,990	1,976,497	351,955	1,735,435
Paint, pigments and varnishes, dut	.....	2,252,837	.....	1,566,340
Perfumeries, cosmetics and all other preparations, dut	.....	2,359,910	.....	2,699,988
Platinum, unmanufactured, ozs., troy, free	32,111	1,154,955	55,729	2,077,536
Plumbago, tons, free	19,645	1,398,261	20,605	2,241,163
Potash (see also fertilizers)—				
Carbonate of, lbs., free	15,890,974	483,890	9,434,590	318,308
Cyanide of, lbs., free	1,245,565	79,714	872,207	134,210
Hydrate of, containing not more than 15 per cent. of caustic soda, lbs., free	.....	.....	2,037,942	100,369
Nitrate of, or saltpeter, crude, lbs., free	2,229,856	74,743	127,270	28,005
All other, lbs., dut	5,214,415	481,770	2,214,261	252,791
Preparations, medicinal, dut	.....	735,105	.....	243,500
Seeds—				
Castor beans or seeds, bu., dut	928,322	1,022,074	855,315	933,628
Flaxseed, or linseed, bu., dut	9,240,530	12,084,970	14,696,623	18,658,658
Grass—				
Clover—				
Red, lbs., free	5,404,756	700,665	13,302,105	1,713,571
All other, lbs., free	19,236,991	1,555,008	10,278,593	963,663
All other grass seeds, lbs	33,164,381	1,427,458	24,980,446	1,074,916
Sugar beet, lbs., free	17,557,062	1,591,147	4,029,022	404,991
All other seeds—				
Free	.....	1,807,321	.....	2,471,813
Dutiable	.....	1,334,332	.....	1,360,534
Soaps—				
Castile, lbs., dut	4,288,984	344,911	3,522,342	310,687
All other, dut	.....	848,358	.....	282,189
Soda—				
Cyanide, free, lbs	2,423,171	366,623	4,178,056	650,559
Nitrate of, tons, free	543,175	15,228,671	772,190	22,959,997
All other salts, free	.....	25,658	.....	30,771
All other salts of, dut., lbs	.....	628	.....	419,612
Spices—				
Unground—				
Cassia and cassavera—				
Dutiable, lbs	6,261,851	370,114	6,288,260	339,948
Ginger root, not preserved, lbs., dut	3,528,142	152,324	4,329,569	226,994
Pepper, black or white, lbs., dut	25,297,726	2,475,998	33,586,661	3,427,205
All other, lbs., dut	19,571,958	2,280,152	22,498,013	2,432,062
Sponges, dut	.....	164,267	.....	510,443
Starch, lbs., dut	11,263,811	280,456	2,856,151	97,339
Sulphur ore as pyrites or sulphuret of iron containing in excess of 25 per cent. of sulphur, tons, free	977,372	4,706,383	974,616	4,817,977
Sulphur or brimstone, crude, tons, free	22,810	409,537	24,647	405,990
Sumac, ground or unground, lbs., free	13,532,586	337,207	14,553,174	349,549
Tanning materials, crude—				
Mangrove bark, tons, free	5,568	149,842	15,897	411,490
Quebracho wood, tons, free	71,988	919,129	81,251	1,182,152
All other, free	.....	455,575	.....	479,743
Vanilla beans, lbs., dut	835,271	2,183,510	501,133	1,442,674
Wax—				
Mineral, lbs., free	6,812,270	442,030	2,845,304	214,495
Vegetable, lbs., free	5,159,598	1,098,720	6,555,069	1,088,278
All other chemicals and drugs, dyes, etc.—				
Free	.....	4,473,821	.....	6,468,292
Dutiable	.....	8,199,317	.....	6,055,310
Zinc and manufactures of—				
Ores and calamines—				
Zinc contents, lbs., dut	24,624,084	.....	111,337,046	4,510,546
In blocks or pigs, and old, lbs., dut	1,759,579	71,165	1,808,964	131,468
Dust, lbs., dut	4,604,107	218,338	1,712,373	170,825

Calendar Year Exports.

	1914 Quantity.	1914 Dollars.	1915 Quantity.	1915 Dollars.
Alcohol, including pure, neutral or cologne spirits, pf. gls	155,647	66,799	363,769	174,880
Alcohol, wood, gls	1,160,721	479,121	1,224,496	632,242
Asbestos, manufactures of	.....	513,037	.....	764,050
Asphaltum—				
Unmanufactured, tons	37,246	845,838	38,163	735,952
Manufactures of	.....	401,182	.....	478,685
Baking powder, lbs	2,857,902	778,032	3,543,591	856,299
Bark, extract of, for tanning	.....	1,084,088	.....	4,163,352
Bauxite, concentrates, tons	5,374	240,084	16,082	717,186
Brushes	.....	399,151	.....	962,947
Calcium, carbide, lbs	32,750,320	958,641	37,379,995	1,154,982
Candles, lbs	3,153,244	307,640	5,301,433	497,333
Celluloid and manufactures of	.....	1,108,503	.....	1,402,044
Chemicals, drugs, dyes and medicines—				
Acids—				
Sulphuric, lbs	13,175,795	140,375	77,812,029	998,124
All other	.....	619,591	.....	9,055,875
Copper, sulphate of, lbs	7,387,236	327,967	13,952,839	680,541
Dyes and dyestuffs	.....	537,539	.....	2,511,065
Ginsing, lbs	155,029	1,265,390	.....	210,415
Lime, acetate of	47,896,901	832,526	19,767,874	552,862
Medicine, patent or proprietary	.....	6,520,553	.....	8,169,067
Petroleum jelly, etc	.....	639,848	.....	1,004,256
Roots, herbs and barks, not mixed	.....	410,055	.....	753,661
Soda, salts and preparations	.....	734,908	.....	7,114,205
Sulphur or brimstone, crude, tons	98,153	1,807,225	37,312	732,697
Washing powder and fluid, lbs	12,683,223	533,060	12,901,710	584,355
All other	.....	11,287,208	.....	39,923,700
Cocoanut and chocolate, prepared or manufactures (except confectionery)	.....	635,879	.....	2,188,873
Celluloid and manufactures of	.....	.....	.....	1,402,044
Copper, sulphate of (blue vitriol), lbs	.....	.....	13,952,839	680,541
Dynamite, lbs	11,303,315	1,213,600	11,446,268	1,502,450
Ferrovanadium, lbs	.....	.....	840,265	741,085
Fertilizers—				
Phosphate rock, ground or unground, not acidulated—				
High-grade hard rock, tons	281,806	2,818,060	34,322	334,954
Land pebble, tons	618,241	3,948,079	218,620	1,269,780
All other, tons	1,067	5,513	357	4,326
All other fertilizers, tons	63,554	1,311,227	113,965	2,778,916
Glass and glassware—				
Bottles, vials, demijohns, carboys and jars	.....	651,747	.....	1,301,460
Cylinder, crown and common window glass, boxes (50 sq. ft.)	.....	405,196	686,997	2,303,873
Plate glass, sq. ft	562,434	193,874	5,054,269	1,497,533
All other	.....	2,285,894	.....	3,956,357
Glucose, lbs	127,201,099	2,895,189	151,643,990	4,107,547
Glue, lbs	2,248,252	242,582	3,775,190	383,696
Grape sugar, lbs	35,681,124	775,036	36,836,296	945,260
Graphite—				
Unmanufactured, lbs	3,920,693	277,386	1,065,704	53,016
Manufactures of	.....	215,878	.....	536,662
Grease—				
Lubricating	.....	2,058,364	.....	3,272,942
Soap stock and other	.....	4,420,766	.....	4,064,434
Gunpowder, lbs	866,569	289,893	83,884,703	66,346,779
Hoofs, horns and horn tips, strips and waste	.....	.....	.....	29,316
Hops, lbs	11,056,449	2,926,401	20,864,837	4,797,994
Ink—				
Printers'	.....	421,086	.....	436,999
All other	.....	152,497	.....	202,127
Instruments and apparatus for scientific purposes—				
Medical and surgical instrucents	.....	.....	.....	626,801
Optical instruments	.....	.....	.....	1,725,065
All other	.....	.....	.....	1,299,908
Lard, lbs	438,015,898	48,610,269	451,053,321	48,340,888
Lard, compounds and other substitutes for lard, lbs	63,355,911	5,686,980	63,567,385	5,519,039
Lard, neutral, lbs	21,797,521	2,429,926	35,386,318	4,006,840
Lead, manufactures of—				
Pigs and bars—				
Produced from domestic ore, lbs	.....	.....	174,177,377	7,797,006
Produced from foreign ore, lbs	.....	.....	41,783,126	1,663,326
All other manufactures of	.....	.....	.....	2,270,889
Oil cake and oil cake meal—				
Corn, lbs	59,076,805	904,561	31,137,289	562,889
Cottonseed cake, lbs	467,401,631	5,746,255	1,292,742,008	17,524,319
Cottonseed meal, lbs	151,684,173	2,083,461	165,707,667	2,296,349
Linseed, lbs	569,415,386	7,978,745	606,356,587	10,764,834
All other, lbs	11,211,008	130,207	17,771,393	212,215
Oil—				
Animal—				
Fish (except whale), gls	155,196	46,880	134,500	54,575
Lard, gls	102,229	81,087	351,284	210,015
All other, gls	613,279	413,768	638,172	457,137
Oleo, lbs	85,144,527	8,918,130	109,395,763	13,011,789
Oleomargarine lbs	2,292,060	240,914	6,774,278	783,321
Vegetable—				
Corn, lbs	16,203,675	1,127,146	16,942,737	1,309,873
Cottonseed, lbs	216,308,961	14,683,798	352,623,678	25,245,317
Linseed, gls	265,781	154,317	1,358,599	735,097
All other	.....	.....	393,263	1,839,796
Volatile—				
Peppermint, lbs	119,037	309,450	196,648	403,027
All other essential	.....	228,736	.....	601,818
Mineral—				
Crude (including all natural oils without gravity), gls	124,735,553	4,958,838	158,263,069	4,282,827
Refined or manufactured—				
Illuminating, gls	1,010,449,253	64,112,772	836,996,731	49,957,273
Lubricating and heavy paraffine oils, gls	191,647,660	26,316,313	239,719,488	32,441,794
Naphthas and all lighter products of distillation—				
Gasoline, gls	162,669,038	19,897,613	169,770,999	20,762,599
All other, gls	47,023,617	5,590,801	112,560,475	13,141,390
Residuum (including tar and all other from which the light bodies have been distilled)—				
Gas oil and fuel oil, gls	634,297,337	18,019,333	799,646,145	22,010,458
All other, gls	69,209,777	1,204,917	12,616,712	364,381
Paints, pigments and varnishes—				
Dry colors—				
Lampblack	.....	389,081	.....	392,997
All other	.....	684,222	.....	1,448,582
Ready mixed paints, gls	771,879	974,400	906,128	1,125,351
Varnish, gls	863,363	834,320	820,208	735,203
White lead, lbs	17,645,538	1,017,376	25,313,239	1,409,713
Zinc, oxide of, lbs	31,183,369	1,408,525	39,900,899	2,068,992
All other (including crayons)	.....	1,593,651	.....	2,156,876
Paraffine and paraffine wax, lbs	188,822,971	6,434,831	386,863,193	12,532,520
Perfumeries, cosmetics and all toilet preparations	.....	1,513,816	.....	2,183,426
Quicksilver, lbs	108,426	70,753	252,852	225,509
Rosin, bbls (280 lbs.)	1,748,500	8,068,224	1,382,837	6,597,614
Seeds—				
Cotton, lbs	10,965,792	144,097	2,063,634	38,930
Linseed, bush	23,684	42,112	5,064	11,329
Grass—				
Clover, lbs	6,659,971	1,114,733	9,427,258	1,524,687
Timothy, lbs	13,548,907	826,769	17,543,398	1,250,379
All other, lbs	4,666,000	527,164	3,679,994	372,315
All other seeds	.....	578,873	.....	717,829
Soap—				
Toilet or fancy	.....	1,801,226	.....	2,330,225
All other, lbs	59,514,401	2,863,323	75,006,993	3,578,053
Sponges, lbs	166,551	129,380	149,411	137,497
Starch, lbs	62,023,590	1,484,647	178,635,301	5,031,365
Stearine from animal fats, lbs	3,239,469	279,859	16,870,824	1,648,421
Surgical appliances (not including instruments)	.....	.....	.....	4,059,748
Tallow, beef	9,980,066	621,296	26,568,663	1,902,189
Tar, turpentine an pitch bbls. (280 lbs.)	419,331	541,300	67,048	286,157

Turpentine, spirits of, gls.	11,118,379	5,188,509	10,624,631	4,844,243
Vulcanized fiber and manufactures of	.....	.....	.....	459,888
Zinc and manufactures of—				
Ore, tons	9,920	388,464	743	35,276
Dross, lbs.	5,051,067	240,944	8,335,417	507,432
Pigs, bars, plates and sheets—				
Produced from domestic ore, lbs.	.....	.....	25,303,584	4,010,360
Produced from foreign ore, lbs.	.....	.....	14,814,410	2,036,301
Plates and sheets, lbs.	.....	.....	81,551,212	13,607,854
All other manufactures of	.....	210,974	.....	16,063,493

CANADIAN IMPORTS.

The statistics of imports into Canada for the twelve months ended November, 1915, furnish some interesting comparisons with the figures for the previous year, and as between the United Kingdom and the United States. The table follows:—

Articles imported.	1914.	1915.
Drugs, dyes, chemicals, etc.	$13,747,420	$14,324,872
Flax, hemp, jute and manufactures	6,869,342	7,449,399
Grease	1,098,837	890,467
Gunpowder and explosives	1,150,275	1,023,202
Oils	14,846,212	11,198,119
Paints and colors	1,662,029	1,656,500
Soap	1,165,750	1,132,565

Articles imported.	From United Kingdom in 1915.	From United States in 1915.
Drugs, dyes, chemicals, etc.	$2,398,288	$10,302,785
Flax, hemp, jute and manufactures	3,323,467	1,755,008
Grease	28,346	857,629
Gunpowder and explosives	178,936	836,129
Oils	529,861	9,918,522
Paints and colors	312,396	1,307,669
Soap	108,662	922,643

BRITISH TRADE WITH FOREIGN COUNTRIES AND COLONIES

Imports.

COMPRISING ARTICLES IN THE REPORTER'S TRADES.

	Quantity, year ended Dec. 31— 1913.	1914.	1915.	Value, year ended Dec. 31— 1913. £	1914. £	1915. £
Oils, refined:—						
Coco nut, cwts.	546,742	309,417	323,671	1,316,246	739,902	845,644
Cottonseed, tons	16,586	19,806	33,771	558,277	659,475	1,115,973
Olive, tuns	6,163	6,384	6,213	385,257	396,849	382,763
Palm and palm kernel, cwts	58,250	62,399	251	141,967	138,364	464
Total value	.....	.....	.....	2,401,747	1,934,590	2,344,844
Spices:—						
Cinnamon, lbs.	808,387	1,052,661	3,439,990	21,883	19,708	86,702
Ginger, cwts.	39,275	63,606	44,649	72,812	91,160	70,986
Pepper, lbs.	13,176,720	22,747,944	32,996,019	361,244	686,668	986,231
Unenumerated	8,881,848	6,655,454	19,584,509	231,404	158,748	383,602
Total value	.....	.....	.....	687,343	956,374	1,507,521
Saccharin and mixtures containing saccharin or other substances of like nature or use:—						
Imports, ozs.	1,242,213	1,656,714	2,127,295	14,425	22,438	64,225
Entered for home consumption, ozs.	1,234,170	1,634,957 *	1,839,164	.....	.....	.....
Oil seeds:—						
Castor, cwts.	1,205,537	1,016,690	556,305	710,587	562,081	359,877
Cotton, from—						
Egypt, tons	238,788	213,879	393,902	2,065,471	1,735,778	3,343,197
British India, tons	213,931	319,465	70,582	1,459,993	1,994,629	538,810
Other countries, tons	162,613	106,228	30,081	1,123,153	889,900	226,186
Totals	614,332	639,572	494,565	4,648,617	4,620,307	4,122,193
Flax or linseed—From:—						
Russia, qrs.	99,247	114,278	14,356	228,167	252,193	56,413
United States, qrs.	42,936	12,759	82	98,366	27,278	257
Argentine Republic, qrs.	1,128,866	1,027,617	1,274,136	2,398,635	2,285,297	3,229,294
British East Indies, qrs.	682,948	1,108,436	795,580	1,564,428	2,713,371	2,106,801
Canada, qrs.	1,277,073	113,372	785	2,792,955	252,164	4,960
Other countries	44,392	75,736	41,470	112,848	193,543	175,897
Totals	3,274,062	2,451,778	2,126,409	7,195,399	5,723,846	5,573,622
Rape—From:—						
Russia, qrs.	116,440	106,375	666	194,617	172,951	2,200
British East Indies, qrs.	96,497	106,918	166,752	221,231	249,066	393,395
Other countries, qrs.	52,623	95,948	24,918	115,877	200,910	68,625
Totals	265,560	309,241	192,336	531,725	622,927	464,220
Soya bean—From:—						
Russia, tons	38,086	48,090	138,605	316,848	403,890	1,169,451
China, tons	34,430	21,531	8,704	301,595	176,484	69,211
Japan, tons	1,929	1,509	27,767	17,240	12,562	222,863
Other countries, tons	7	31	.....	64	254	.....
Totals	76,452	71,161	175,136	635,747	593,190	1,461,525
Unenumerated, qrs.	126,451	162,653	358,349	233,240	336,381	912,157
Nuts and kernels (or expressing oils therefrom, tons	81,120	168,847	448,360	1,933,052	3,595,417	8,001,791
Oils:—						
Fish—Train, blubber and sperm, tuns	70,886	52,537	91,872	1,508,416	1,139,400	2,278,065
coco-nut, unrefined, cwts.	622,801	386,593	689,590	1,342,469	807,463	1,408,286
Olive, tuns	2,882	5,577	4,736	130,191	266,563	234,827
Palm (not including palm kernel oil), unrefined, cwts	.....	1,318,303	1,347,379	.....	1,917,901	1,953,427
Palm kernel oil, unrefined, cwts.	.....	169,462	.....	.....	339,744	.....
Totals	1,562,203	1,487,765	1,347,379	2,329,842	2,257,645	1,953,427
Petroleum:—						
Crude, gls.	1,108,900	15,105,588	6,350,136	14,746	154,930	60,100
Lamp oils, gls.	157,141,241	150,131,235	144,734,313	2,679,518	2,501,054	2,575,622
†Motor spirit, gls.	100,858,017	119,030,155	144,939,700	3,803,397	4,301,865	5,262,547
Spirit, other than motor spirit, gls.	270	.....	.....	46	.....	.....
Lubricating oils, gls.	67,962,493	66,946,512	76,780,075	2,472,514	2,340,982	2,901,968
Gas oil, gls.	65,949,677	83,165,349	90,129,097	735,388	977,194	1,084,866
Fuel oil, gls.	95,062,187	212,675,855	132,184,554	1,149,816	2,479,376	1,491,682
Other sorts	24,178	17,942	20,909	1,381	806	1,687
Total of petroleum, gls.	588,106,963	646,712,631	595,158,694	10,856,806	12,756,207	13,378,481
Seed oil:—						
*Cottonseed oil, unrefined, tons	1,070	3,114	4,086	31,748	89,551	107,504
Linseed oil, pure, tons	11,806	5,152	167	310,157	129,190	6,615
Linseed oil, not pure, tons	22	104	1	513	2,442	36
Rapeseed oil, tons	7,599	6,861	8,284	222,556	198,162	250,443
Other seed oils, tons	20,380	24,314	42,168	767,810	868,001	1,302,831
Turpentine, cwts.	560,359	348,206	529,517	708,800	542,205	903,381
Soap stock, cwts.	52,984	75,309	28,967	41,487	58,612	20,752
Stearine—From:—						
Belgium, cwts.	35,011	28,950	.....	68,885	61,785	.....
Other countries, cwts.	47,578	66,380	131,517	98,559	137,663	324,980
Totals	82,589	95,330	131,517	167,444	199,448	324,980
Tallow (including vegetable tallow), unrefined:—						
From—						
China, cwts.	111,650	44,783	72,565	175,675	68,525	116,271
United States, cwts.	83,668	10,726	92,482	132,791	17,199	163,418
Uruguay, cwts.	77,698	54,184	15,058	134,236	85,550	26,398
Argentine Republic, cwts.	251,119	153,702	176,596	398,809	252,620	311,835
Australia, cwts.	915,283	871,198	774,672	1,557,338	1,406,982	1,306,201
New Zealand, cwts.	424,307	469,676	482,442	717,264	774,124	826,437
Other countries, cwts.	58,350	37,583	27,773	91,515	57,228	45,960
Totals	1,902,084	1,641,852	1,641,588	3,207,628	2,662,228	2,796,520
Gum:—						
Arabic, cwts.	133,274	117,126	150,282	229,791	213,437	255,092
Kauri, cwts.	145,633	135,640	64,692	602,851	481,983	293,263
Lac-dye, seedlac, shellac and sticklac, cwts.	108,739	101,009	113,470	418,447	344,551	355,122
Rosin, cwts.	1,758,067	1,548,184	2,048,264	1,120,652	822,093	1,191,483
Manures:—						
Basic slag, tons	51,153	16,572	.....	102,114	31,819	.....
Bones for manure (whether burnt or not), tons	40,685	34,404	27,761	219,637	186,001	179,815
Guano, tons	25,548	30,285	26,720	149,189	232,086	182,015
Nitrate of soda (cubic niter), tons	140,926	171,910	132,158	1,490,669	1,721,138	1,505,085
Phosphate of lime and rock phosphate, tons	539,016	502,242	374,639	874,166	970,337	704,749
Quicksilver, lbs.	3,401,165	2,832,626	3,043,434	338,544	270,633	547,229
Chemicals:—						
Acetic acid (other than for table use), cwts.	75,128	77,917	104,829	85,790	93,646	224,611
Bleaching materials, cwts.	139,650	106,367	17,856	34,372	28,621	10,302
Boracite, borate of lime, borate of magnesium and borax, cwts.	468,923	403,137	414,379	202,959	177,564	208,902
Brimstone, cwts.	564,288	435,979	711,102	92,712	107,585	205,489
Carbide of Calcium, cwts.	513,797	575,443	521,523	272,445	307,531	293,188
Coal products, not dyes, cwts.	119,909	131,778	54,154	164,447	118,475	68,862
Cream of tartar, cwts.	79,700	66,691	54,337	321,974	329,533	400,044

* Including Anglo-Egyptian Sudan prior to 1914. From 1914 Anglo-Egyptian Sudan is included in "Other countries."

† Duty was paid on 112,338,000 gallons during the year ended December 31, 1915.

	Quantity, year ended Dec. 31— 1913.	1914.	1915.	Value, year ended Dec. 31— 1913. £	1914. £	1915. £
Glycerine:—						
Crude, cwts.	87,908	85,293	95,755	255,718	258,200	272,029
Distilled, cwts.	22,076	15,613	40,813	84,570	63,769	165,862
Potash compounds:—						
Saltpeter (nitrate of potash), cwts.	237,880	209,439	276,580	240,966	230,244	382,966
Other sorts, value	.....	.....	.....	630,234	491,401	493,629
Soda compounds, cwts.	179,801	208,268	102,277	172,050	167,982	263,538
Tartaric acid, cwts.	45,936	40,222	34,559	247,377	228,013	265,630
Unenumerated, including acetate of lime, acetone, muriate of ammonia and sulphuric acid, value	.....	.....	.....	1,718,922	1,575,836	4,231,216
Drugs and medicines:—						
Bark, Peruvian, cwtc.	26,122	33,346	20,416	58,603	75,234	55,819
Quinine and quinine salts, ozs.	2,422,944	1,868,515	4,581,646	102,102	102,410	320,992
Unenumerated, value	.....	.....	.....	1,302,860	1,226,584	2,147,178
Dye stuffs (other than dye woods) and substances used in tanning:—						
Dyestuffs:—						
Cutch, cwts.	52,781	59,568	91,828	71,545	80,938	131,758
Dyes and dyestuffs obtained from coal tar:—						
Alizarine and anthracene dye stuffs, cwts.	60,813	32,091	.....	272,245	134,647	.....
Aniline and naphthalene dye stuffs, cwts.	283,027	192,369	5,431	1,542,545	1,105,857	42,904
Synthetic indigo, cwts.	23,889	15,517	6,542	76,695	50,567	74,849
Other coal tar dye stuffs, cwts.	155	179	67	570	359	702
Extracts for dyeing, value	.....	.....	.....	128,437	138,332	346,272
Indigo, cwts.	4,171	5,314	25,157	54,739	181,695	1,256,712
Unenumerated, cwts.	136,099	150,281	280,334	302,128	336,035	1,460,502
Tanning substances:—						
Bark for tanning, cwts.	892,054	846,276	761,623	348,082	321,450	322,158
Extracts for tanning, value	.....	.....	.....	922,600	972,520	1,920,801
Gambier, cwts.	101,712	141,971	208,748	142,026	174,233	306,698
Myrabolans, cwts.	565,222	569,600	773,984	176,855	162,941	292,297
Sumach, cwts.	164,100	152,006	143,333	83,161	80,986	84,040
Valonia, cwts.	346,092	362,734	142,456	164,208	171,392	101,922
Unenumerated, cwts.	32,935	23,455	64,278	16,533	12,021	44,251
Painters' colors and pigments:—						
Barytes, cwts.	1,092,645	631,780	141,740	150,376	85,277	36,016
Nickel oxide, cwts.	17,965	25,264	33,463	90,119	125,754	168,757
Red lead, cwts.	61,006	39,021	2,111	63,259	42,667	2,886
White lead, cwts.	321,323	282,642	174,502	362,913	337,591	233,380
Zinc oxide, cwts.	368,898	354,708	379,247	429,318	409,543	575,147
Unenumerated, cwts.	929,101	729,713	490,930	856,027	668,227	499,545
Totals	2,790,938	2,063,728	1,221,993	1,952,012	1,669,059	1,515,731
Total of chemicals, drugs, dyes and colors, value	.....	.....	.....	12,905,515	12,064,430	19,343,951
Oil seed cake, not sweetened:—						
Cottonseed cake, tons	236,723	183,169	217,464	1,407,023	1,083,478	1,614,462
Linseed cake, tons	83,679	47,555	66,697	626,118	380,598	651,815
Rapeseed cake, tons	28,882	37,421	7,755	156,592	184,092	47,623
Unenumerated, tons	57,416	61,286	133,197	350,150	360,761	956,239
Totals	406,700	329,431	425,113	2,539,892	1,988,839	3,273,139
Paraffine wax, cwts.	1,140,466	1,054,354	1,842,812	983,989	862,368	1,531,816
Soap:—						
Soft soap, cwts.	4,367	7,164	2,970	5,253	5,972	3,565
Household and laundry soap in bars or tablets	162,188	106,948	181,233	195,454	130,658	226,614
Polishing and scouring soap, cwts.	4,825	3,770	3,892	5,667	4,802	4,343
Powder, cwts.	55,799	49,387	56,526	52,900	48,210	54,845
Toilet, cwts.	20,201	15,634	18,250	131,126	112,379	140,981
Unenumerated, cwts.	144,959	175,487	174,261	91,963	109,994	122,858
Total value of imports	.....	.....	.....	768,734,739	606,635,113	853,756,279

Exports of Produce and Manufactures of the United Kingdom.

	Quantity, year ended Dec. 31— 1913.	1914.	1915.	Value, year ended Dec. 31— 1913. £	1914. £	1915. £
Oils, refined:—						
Coco-nut, cwts.	58,912	56,209	101,164	141,777	147,631	268,035
Cottonseed, tons	25,013	27,062	21,505	755,083	864,037	677,899
Olive, tuns	304	228	172	45,487	36,552	32,083
Palm, cwts.	15,168	20,153	48,084	24,160	39,264	103,740
Total value	.....	.....	.....	966,510	1,087,484	1,081,757
Grease and unrefined tallow and animal fat, cwts.	698,920	677,633	615,450	848,100	837,647	799,904
Oils:—						
Coco-nut, unrefined, cwts.	62,067	50,837	38,814	127,465	105,709	78,783
Olive, unrefined, tuns	20	12	10	1,183	626	700
Palm, cwts.	20,995	63,685	162,672	43,096	138,331	334,419
Oil, seed—To:—						
Germany, tons	8,966	5,208	.....	248,864	136,501	.....
Netherlands, tons	2,813	4,903	36,336	74,947	119,717	1,072,556
Belgium, tons	5,160	778	.....	82,303	21,385	.....
Austria-Hungary, tons	1,632	1,567	.....	51,538	51,534	.....
Brazil, tons	4,351	2,372	3,132	123,720	65,586	97,354
Egypt (including Anglo-Egyptian Sudan), tons	1,557	1,591	1,007	44,407	44,321	31,860
British India, tons	1,622	1,459	1,303	49,363	42,787	43,327
*Straits Settlements, tons	572	544	526	18,755	16,411	18,414
Ceylon, tons	179	161	99	5,358	4,622	3,065
Australasia, tons	6,342	4,710	4,521	194,307	142,912	156,461
Canada, tons	631	378	543	18,783	9,970	17,770
Other countries, tons	26,942	28,138	38,846	817,004	848,956	1,273,845
Total:—						
Castor oil, tons	10,818	7,715	3,071	301,839	202,025	109,506
Cottonseed oil, unrefined, tons	522	438	4,702	15,453	13,198	127,208
Linseed oil:—						
Pure, tons	24,738	22,513	54,032	794,150	639,986	1,675,618
Not pure, tons	3,172	1,832	1,895	86,683	48,389	54,835
Rapeseed oil, tons	5,839	6,830	6,048	175,846	206,192	218,259
Soya bean oil, tons	9,390	9,321	13,472	294,238	305,059	422,362
Other seed oils, tons	2,287	3,190	3,093	61,240	89,853	106,864
Totals	58,767	51,809	86,313	1,729,449	1,504,702	2,714,652
Chemicals, drugs, dyes and colors:—						
Bleaching powder—To:—						
United States	397,060	228,870	52,643	81,301	54,987	16,829
Other countries, cwts.	329,330	370,430	440,865	87,347	103,788	164,404
Totals	726,390	599,300	493,508	168,648	158,775	181,233
Coal products, not dyes:—						
Aniline oil and toluidine, lbs.	1,350,678	1,981,444	2,872,952	28,863	54,916	108,752
Anthracene, lbs.	564,372	633,407	787,950	1,448	1,271	1,808
Benzol and toluol, gls.	6,654,588	4,163,773	7,334,436	302,846	195,503	430,853
Carbolic acid, cwts.	168,884	130,412	145,842	190,490	125,303	250,992
Coal tar, crude	87,940	48,011	23,626	16,339	9,650	3,998
refined and varnish, gls.	3,071,432	2,677,453	2,536,821	68,639	57,217	55,599
Naphtha, gls.	515,392	391,409	412,296	24,612	17,432	24,454
naphthalene, cwts.	86,053	60,903	70,985	37,665	23,589	47,780
Pitch, cwts.	9,731,364	7,246,977	5,295,357	1,100,046	711,105	341,328
Tar oil, creosote, etc., gls.	36,757,792	31,146,740	35,697,286	592,453	523,799	659,148
Other sorts, cwts.	704,240	602,576	469,228	297,767	298,481	302,387
Total value	.....	.....	.....	2,661,148	2,028,566	2,227,099
Copper, sulphate of, tons	75,633	67,898	65,210	1,701,219	1,423,018	1,625,018
Dye stuffs:—						
Products of coal tar, cwts.	48,673	46,031	36,771	177,246	170,013	289,477
Other sorts, cwts.	148,146	175,827	172,248	105,277	125,433	232,762
Totals	196,819	221,858	209,019	282,523	295,466	502,239
Glycerine:—						
Crude, cwts.	145,755	50,701	136,849	442,635	153,369	423,562
Distilled, cwts.	96,306	81,620	87,612	378,746	334,412	377,893
Totals	242,061	132,321	224,461	821,381	487,781	801,455
Manures:—						
Sulphate of ammonia—To:—						
Germany, tons	9,388	3,417	.....	124,122	42,967	.....
France, tons	8,874	2,486	11,430	121,317	29,635	152,944
Spain and Canaries, tons	60,852	64,149	68,370	834,174	774,201	934,984
Italy, tons	5,822	5,060	7,071	80,738	62,743	93,900
Dutch East Indies, tons	37,119	54,869	93,967	502,870	645,408	1,275,102
Japan, tons	114,583	87,776	10,537	1,545,399	1,077,438	128,576
United States, tons	36,919	43,601	16,377	497,730	516,808	213,859
British West India Islands (including Bahamas) and British Guiana	10,012	11,990	12,755	138,248	141,234	178,215
Other countries, tons	39,485	39,993	73,801	545,949	477,119	994,033
Totals	323,054	313,341	294,308	4,390,547	3,767,553	3,971,613
Superphosphates, tons	63,480	66,051	68,735	166,314	175,449	224,555
Basic slag, tons	165,100	132,269	117,487	261,972	211,075	200,487
Unenumerated, tons	152,437	127,454	61,401	926,656	732,397	416,353
Total of manures	704,071	639,115	541,931	5,745,489	4,886,474	4,812,008

	Quantity, year ended Dec. 31— 1913.	1914.	1915.	Value, year ended Dec. 31— 1913. £	1914. £	1915. £
Medicines, comprising drugs and medicinal preparations:—						
Opium, dried and powdered in the United Kingdom, lbs.	12,105	19,696	7,630	12,395	28,886	11,767
Quinine and quinine salts, ozs.	1,374,328	1,477,703	2,413,724	72,642	91,415	221,268
Other sorts, value	.....	.....	.....	2,266,744	2,178,884	2,831,150
Total value	.....	.....	.....	2,351,781	2,299,185	3,064,185
Muriate of ammonia, cwts.	95,461	91,242	85,067	127,075	117,429	122,296
Painters' colors and materials:—						
Barytes, cwts.	114,731	59,587	49,079	20,054	11,209	12,718
White lead, cwts.	367,854	384,982	310,816	504,729	534,770	481,114
Zinc oxide, cwts.	49,801	38,733	44,670	84,866	44,070	87,468
Unenumerated, cwts.	1,932,325	1,635,564	1,278,057	2,706,742	2,375,298	2,097,670
Totals	2,464,711	2,118,863	1,682,622	3,286,391	2,966,247	2,674,970
Potash compounds:—						
Saltpeter (nitrate of potash), British prepared, cwts.	33,918	20,281	19,439	46,580	30,048	43,801
Chromate and bi-chromate of potash, cwts.	55,846	35,717	8,838	81,456	52,762	26,623
Other sorts, value	.....	.....	.....	159,996	197,796	203,995
Soda compounds:—						
Soda ash, cwts.	3,124,797	3,575,260	4,364,270	563,296	643,449	804,433
Soda, bicarbonate, cwts.	499,532	509,197	555,575	123,567	127,500	145,125
Soda, caustic, cwts.	1,498,145	1,488,052	1,117,005	723,743	701,894	614,800
Soda, chromate and bi-chromate, cwts.	48,527	47,975	91,370	59,919	59,944	134,757
soda, crystals, cwts.	209,435	232,032	300,520	45,326	39,536	51,760
Soda, sulphate (saltcake); cwts.	1,324,899	791,991	628,167	114,022	70,902	57,762
Other sorts, cwts.	501,527	540,685	523,705	158,226	174,042	215,973
Totals, cwts.	7,206,862	7,185,192	7,580,612	1,788,099	1,818,167	2,024,606
Sulphuric acid, cwts.	170,503	95,263	56,365	62,722	39,069	20,796
Tartaric acid, cwts.	10,401	9,654	16,317	88,135	56,846	132,969
Chemicals, other sorts, value	.....	.....	.....	2,630,779	2,733,262	3,666,711
Total of chemicals, drugs, dyes and colors, III, J, value	.....	.....	.....	21,974,586	19,508,061	22,059,580
Oilseed cake, not sweetened:—						
Cottonseed cake, tons.	7,762	4,430	3,103	36,638	17,265	19,000
Linseed cake, tons.	6,149	4,184	106	47,394	31,981	1,094
Rapeseed cake, tons.	970	400	299	5,121	2,205	2,070
Soya bean cake, tons.	29,903	8,845	18,566	208,839	61,322	156,227
Unenumerated, tons.	8,664	23,707	8,051	56,292	153,054	57,055
Totals	53,448	41,566	30,125	354,344	265,827	236,055
Paraffine wax, cwts.	328,307	286,750	318,739	320,011	254,506	326,909
Total of soap, cwts.	1,747,374	1,735,200	1,911,240	2,092,686	2,186,274	2,507,210
Total value of exports the produce and manufactures of the United Kingdom	.....	.....	.....	525,245,280	430,721,357	384,647,336

Exports of Foreign and Colonial Merchandise.

	Quantity, year ended Dec. 31— 1913.	1914.	1915.	Value, year ended Dec. 31— 1913. £	1914. £	1915. £
Oils, refined:—						
Coco-nut, cwts.	11,581	12,481	23,063	27,917	32,425	85,150
Cottonseed, tons.	773	1,811	9,875	24,941	53,766	309,806
Olive, tuns	813	817	728	70,689	63,705	59,687
Palm and palm kernel, cwts.	774	450	399	1,858	1,187	1,232
Total value	.....	.....	.....	125,405	151,083	444,935
Spices:—						
Cinnamon, lbs.	313,052	305,416	1,871,759	12,979	10,439	49,911
Ginger, cwts.	13,278	19,578	21,418	27,833	23,658	30,905
Pepper, lbs.	5,729,841	12,696,303	17,999,077	148,381	361,617	526,487
Unenumerated, lbs.	5,861,448	5,130,956	10,710,735	155,228	116,404	215,144
Saccharin and mixtures containing saccharin or other substances of like nature or use	154,846	225,966	34,037	2,127	2,046	1,289
Oil seeds, nuts oils, fats and gums:—						
Oil seeds:—						
Flax or linseed, qrs.	28,904	69,944	90,542	69,695	164,088	235,090
Nuts and kernels, for expressing oil therefrom, tons	24,886	45,240	108,577	629,176	988,374	2,545,842
Oil:—						
Fish—Train, blubber and sperm, tuns	5,796	4,685	4,570	121,360	90,216	107,759
Unrefined:—						
Coco-nut, cwts.	60,911	37,565	108,831	129,846	86,140	248,537
Olive, tuns	313	393, 393	132	13,550	17,847	6,578
palm (not including palm kernel oil), cwts.	924,875	844,174	906,317	1,308,050	1,205,192	897,526
Palm kernel oil, cwts.		3,435	3,612		5,555	8,119
Petroleum:—						
crude, gls.	.....	.....	.....	.....	.....	.....
Lamp oils, gls.	508,990	888,023	3,813,924	16,857	19,568	89,053
Motor spirit, gls.	708,956	347,522	4,984,983	34,256	19,474	220,883
Spirit, other than motor spirit, gls.	270	.....	.....	46	.....	.....
Lubricating oils, gls.	1,112,414	1,060,222	1,821,856	60,851	59,093	84,174
Gas oil, gls.	614,470	2,110,996	235,639	13,038	27,742	4,337
Fuel oil, gls.	1,181,271	750,140	647,984	19,261	11,813	10,434
Other sorts, gls.	40	4,000	13,348	2	150	905
Total of petroleum, gls.	4,126,381	5,110,903	11,517,734	144,311	137,840	409,786
Stearine, cwts.	9,657	10,457	31,068	17,787	22,175	79,695
Tallow (including vegetable tallow), unrefined, cwts.	943,244	823,851	536,140	1,644,426	1,381,483	953,318
Gum:—						
Arabic, cwts.	50,890	44,354	44,396	91,483	81,685	97,338
Kauri, cwts.	105,105	77,193	51,360	488,862	340,112	263,775
Lac-dye, seedlac, shellac and sticklac, cwts.	51,590	46,685	41,027	213,863	166,574	143,103
Rosin, cwts.	80,088	167,335	497,322	55,031	89,374	295,544
Chemicals, drugs, dyes and colors:—						
Chemicals:—						
Boracite, borate of lime, borate of magnesium and borax, cwts.	223	14,300	19,384	201	6,470	8,921
Coal products, not dyes, cwts.	12,574	4,968	5,816	13,562	6,657	11,206
Cream of tartar, cwts.	10,020	9,222	12,906	45,781	51,138	96,287
Glycerine:—						
Crude, cwts.	17,062	14,507	6,493	47,145	41,819	18,377
Distilled, cwts.	600	75	1,018	2,416	314	4,072
Potash compounds:—						
Saltpeter (nitrate of potash), cwts.	10,506	7,833	52,084	9,815	7,869	89,262
Tartaric acid, cwts.	6,167	4,717	2,108	33,988	26,779	21,594
Of all other sorts, value	.....	.....	.....	177,230	159,768	304,093
Drugs and medicines:—						
Bark, Peruvian, cwts.	18,621	15,188	7,220	54,846	32,008	20,638
Quinine and quinine salts, ozs.	305,591	82,865	701,055	11,768	4,676	85,807
Unenumerated in import list, value	.....	.....	.....	444,813	425,959	608,004
Dye stuffs (other than dye woods) and substances used in tanning or dyeing:—						
Dye stuffs:—						
Cutch, cwts.	14,813	17, 92	57,991	18,833	22,098	87,563
Extracts for dyeing, value	.....	... ..	.....	5,190	9,533	77,318
Indigo, cwts.	2,267	1,896	8,026	32,264	51,249	467,213
Tanning substances:—						
Bark for tanning, cwts.	677,627	600, 96	301,029	275,795	235,687	130,734
Extracts for tanning, value	.....	... ..	.....	32,056	39,004	721,255
Gambier, cwts.	8,154	24,807	28,120	14,833	29,828	44,202
Myrobalans, cwts.	22,003	14,270	24,511	6,277	5,232	12,055
Sumach, cwts.	18,091	7,706	10,627	8,805	3,952	6,146
Valonia, cwts.	3,841	3,398	892	2,706	1,987	673
Unenumerated, cwts.	7,579	3,147	8,382	3,832	1,550	4,983
Painters' colors and pigments, cwts.	28,187	48,372	45,250	32,518	33,290	76,957
Total of chemicals, drugs, dyes and colors	.....	.....	.....	1,640,939	1,497,938	3,131,225
Soap:—						
Household and laundry soap in bars or tablets, cwts.	14,983	9,302	8,079	17,288	11,196	10,353
All other sorts, cwts.	1,239	1,020	3,458	5,607	3,100	6,700
Total value of exports of foreign and colonial mer-						

FRENCH GLYCERINE MARKET IN 1915.

The year 1914 ended with the saponification of glycerine market very firmly held, having reached a level of 175 francs per 100 kilos, naked, while the soaplye grade had become quiet at 125 francs per 100 kilos, naked.

During the first half of 1915 fluctuations in prices for the crude grades of glycerine were of little importance, but during the last half of the year they reached a level unknown until then in the history of the commodity.

In January the saponification description was maintained around 170 francs per 100 kilos and soapiye held its own fairly well, with some business effected at 125 francs to 130 francs per 100 kilos.

In February, although the embargo on export shipments was lifted by the French Government in favor of shipments to Great Britain and its colonies and to the United States of America, the saponification grade receded and some business was done at prices ranging from 165 francs down to 155 francs. Soaplye continued to hold around 125 francs.

In March saponification held at 155 francs, with only a limited volume of business, and soaplye, less freely offered, was more strongly maintained at 125 to 127.50 francs.

In April the market became depressed by the general recession of business in all lines, and by the quasi stagnation which developed throughout Europe, and buyers became extremely conservative. Some small lots of saponification changed hands, however, at 150 francs down to 140 francs, but soapiye, which had declined to 118 francs, was restored toward the end of the month to 125 francs, with few sellers at that figure.

In May a slight stiffening of the market began to manifest itself and led to transactions in saponification at 145 to 150 francs, while soaplye rose again to 125 francs.

In June some important transactions were effected in saponification at 155 francs to 160 francs for deliveries in the second half of the year, and some business was also put through in soapyle at 128 to 130 francs.

In July prices advanced steadily from 160 to 180 francs for saponification and from 135 to 140 francs for soaplye, with a comparatively large amount of business transacted at these figures.

In August a strong upward movement developed and some business in saponification was done at 190 to 210 francs and in soaplye from 145 to 150 francs.

In September the French Government placed an absolute ban upon exports of all grades of glycerine to all destinations. This embargo was without much influence upon saponification, which was greatly sought for in order to meet home requirements, but prices for this description rose to 225 francs, while some small transactions were effected in soaplye at 160 francs.

In October prices for saponification continued to mount slowly, from 235 to 250 francs, while soaplye was traded in to some extent, a few lots of spot goods being taken at 155 to 152.50 francs. The sensational uplift of prices, which occurred in the United States about this time, was not duplicated in the French market, however, on the score of this export embargo.

In November the saponification grade continued to move upward, however, and some business was put through in this grade at figures leading up to 275 francs, while some transactions were effected in soaplye for deliveries in the first few months of 1916 at 160 francs.

In December some business in saponification, for deliveries in the first few months of 1916, was effected at 275 francs, and small isolated lots of spot goods were taken up to meet local needs at 285 to 300 francs. Toward the end of the month the demand abated considerably and some sellers lowered their prices to 250 francs. Soaplye glycerine was also the subject of some transactions, business in spot lots having been put through at 155 francs and for deliveries in the first few months of 1916 at 157.50 francs, but at the close of the month no buyers were to be found willing to bid more than 155 francs for deliveries in 1916.

The year 1915 ended with the quietness customary at this period of the year, and it is impossible to predict what the course of the French market will be within the ensuing year, despite the fact that a noteworthy recession has already occurred in the United States, as the French and American markets are now entirely independent of each other so far as price movements are concerned.

The Development in the United States of the Manufacture of Products Derived from Coal.

By H. W. JORDAN.

During 1915 we read statements in the press almost daily which gave the impression that our American chemical industry was wholly unable to manufacture synthetic coal products, and that the only relief in sight was from the wonderful discoveries of a small group of chemical amateurs, who, having patriotically hurled themselves into the situation since the war began, were on the verge of evolving the entire 900 synthetic coal-tar dyes and the whole list of pharmaceuticals from palmetto and other sources hitherto unsuspected as being fundamental to organic chemical products. These statements, by implication, and by omitting mention of the extensive plants erected and put into operation by the old established chemical companies in 1915, tended to create the public belief that these companies were doing nothing to supply the American market.

Some of the most important products which were widely heralded as having been produced for the first time in America in 1915 were manufactured by these companies fifteen to thirty years ago. Benzol and its homologues have been regular American products, with shipment in carload lots or tank cars, and with occasional exportation to Europe since 1900. Salicylic acid was manufactured at Jersey City by Zinsser & Co. from 1880 until 1897, when foreign competition closed the plant.

Synthetic Carbolic Acid was manufactured by the Semet-Solvay Company from benzol at Syracuse in 1900 and the following years in quantities up to 2,500 pounds daily. This carbolic commonly known as picric acid, which was bought by the United States Government for use in national defense. The United States had several well equipped plants prior to 1885 for manufacturing the principal coal dyes of that day. The industry grew and produced an increasing number of synthetics, from which all those survive which could surmount the natural and artificial barriers in the road to a complete American coal products industry. The principal ones of these manufacturers have continued without interruption, and constitute the main body of our present organic chemical industry.

The failure to give credit in the daily press for the large amount of capital invested and for the extensive work accomplished during the past year is not fair to these American companies which built up our great American chemical industry during the past thirty years, and who are now the prime movers in expanding our American coal products industry to meet the new conditions.

The Benzol Products Company Is an Example of This Growth.

Organized in 1910 by men long associated with the acid, alkali and coal products industry, it began the manufacture of aniline and aniline salt at Frankford, Pa., in the aniline plant operated several years before by the late Dr. Jayne. Although the company's output of aniline in 1910 was but a small percentage of the American consumption, the English and German producers immediately dropped the price from 10 or 11 cents per pound, where they had held it for several years, to 9 or 8 cents per pound.

Most of the American consumers of aniline refused to buy this American aniline at the fair price of 9 to 10 cents at which it was offered. Instead they followed their usual custom and sacrificed the American producer by supporting the cut rate foreign producers.

These American consumers were the very ones who rushed to Washington when the war began and frantically implored the Department of the Interior to bring it right away, quick, through the Division of Mines, some unfailing source of supply to provide the 2,000 or more synthetic coal dyes and pharmaceuticals which had required forty-five years of German science and organization to develop. The trip to Washington was easy for them. They had been there repeatedly since 1880, whenever a tariff bill was under consideration, to advocate no tariff on dyes.

The Benzol Products Company received the support of a few of the most far-sighted American consumers, who realized that the permanent establishment of aniline manufacture in the United States was of far greater value than the profit for a few years on their purchase of aniline at 2 cents per pound below its former price. With their support the manufacture of American aniline was continued.

Since the war a new plant was built at Marcus Hook, Pa., and put into operation in August, 1915, with ultimate capacity equal to the former United States consumption of aniline. Notwithstanding war conditions, which multiplied the price of its raw materials, benzol, sulphuric acid and nitric acid, the company sold its aniline at a price less than half the prevailing market price of aniline during 1915.

This production of aniline, supplemented by that of a few other plants has supplied the American market to a fairly comfortable extent.

The Benzol Products Company's aniline has been distributed, by preference, to those consumers who employ directly or indirectly the greatest number of people. The important fact is that in 1916 a supply of aniline equal to the former American consumption will be available at fair prices, and that this supply is not coming from mysterious nor untried sources.

Benzol Supply.

Since 1909 the production of benzol has steadily increased in the United States, so that there was enough benzol at all times for the manufacture of dyes if the industry had been established by the assistance of the Federal Government and by the sustained support of the American textile manufacturers. Not only were both these lacking, but the textile manufacturers persistently favored the English and German producers in preference to any American manufacturers.

Benzol supply is only one factor, and alone it is not sufficient to justify the very heavy investments required to establish an American coal products company.

In 1915 several steel companies operating by-product coke ovens installed benzol recovery plants, so that a heavy production of American benzol is assured. When the war ends the output from these plants will be so abundant that it may become available as motor fuel for automobiles. In this service one gallon of motor benzol gives 15 per cent greater mileage than does one gallon of gasoline.

Acids and Alkalies the Foundation of Coal Products Industry.

Under the abnormal conditions and inflated prices caused by the war, many small plants sprung up and have produced products derived from coal, at a profit. At the end of the war, these plants will fall like autumn leaves. A few will struggle on and consume their war profits in hopeless endeavor to establish permanent business. Only those built on a firm economic basis will survive.

The manufacture of products derived from coal is not an industry by itself. It is founded upon, and is an extension of, the manufacture of mineral acids and alkalies, and was created as a means of making a wider market for those acids—sulphuric, nitric, hydrochloric, acetic, for chlorine and the like, and a market for the alkali products, soda ash and caustic soda. For this reason a permanent coal products chemical industry cannot be created in America except by co-operation with, or extension of, the American acid and alkali manufacturing companies.

The Value of Experience.

In 1915, with prices ten to fifteen times normal, it was possible to manufacture some coal products with large profit in the United States. With the return to normal conditions, we must conduct our processes with keenest attention to the

of 1 per cent. or 2 per cent. in the steps of manufacture mean bankruptcy.

Proof that Americans sadly lack this scientific detail was given in 1915 by the many serious accidents, fires and explosions in plants manufacturing these products, the cause of which was faulty engineering design, inexperienced superintendence, untidy plant housekeeping and careless workmen.

With unconscious humor, we have done homage to German efficiency by ascribing these accidents to the German diplomatic service.

To illustrate the necessity of attention to detail, take synthetic manufacture of carbolic acid. This process, starting from pure benzol, involves five chemical reactions and from ten to fifteen chemical operations, if all by-products be recovered. If an avoidable loss so small as 1 per cent. or 2 per cent. be permitted in each of these steps, the final yield of carbolic acid would be so low that the process might be a commercial failure. Yet carbolic acid is one of the most simple products to manufacture.

Many others involve more steps, or steps in which the lack of technical skill produces larger loss. For example—a certain product with a normal price of 30 cents per pound has a possible maximum yield of 100 units attainable by extreme care in manufacture. With moderate care the yield drops to 88 per cent., and with ordinary care the yield drops to 75 per cent. Expressed in dollars and cents, the result per ton is:—

	Per ton.
Possible yield, 100%, 2,000 lbs., @ 30c.	$600
Usual yield, 88%, 1,760 lbs, @ 30c.	528
Common yield, 75%, 1,500 lbs., @ 30c.	450
Loss @ 88%	72
Loss @ 75%	150

Nationalization of the Industry.

Approach to 100 per cent. technical efficiency is not the only requisite for commercial success. The intricate processes yield numerous by-products. Some are acids and alkalies which must be recovered and returned for use in the process. Others are salts or coal products which must be refined and sold. For many of these no market exists in the United States.

A network of markets must be created for every one of these by-products, either in the United States, in South America, Asia or Europe, if our American coal products industry is to grow with the world and pay reasonable dividends on the investment.

It is not sufficient that American consumers acquire the habit of buying chemicals "made in the United States." Our chemical industry, to endure, must cover the world's market; indeed, its ultimate success may depend upon an American merchant marine.

The German system of nationalized industry handles this multitude of by-products with military precision, by fitting each one into the particular technical and commercial chink best suited to it, so that all by-products are marketed at or above cost. This permits the main product to be sold at a profit large enough to sustain the normal growth of the plant and to develop new products, without adding new capital, and in addition, to pay 10 per cent. to 25 per cent. dividends.

In complete contrast it has been, and is, the policy of our Federal government to forbid any such interlocking national co-operation.

National Defense.

The coal products chemical industry is vital to national defense. One source of the extraordinary military strength of Germany is her ability to manufacture ammunition, literally from the air and earth, in unlimited quantity. This ability was created by the chemical industry, which built huge works and trained an industrial army of men with the scientific knowledge and technical skill necessary to transform the nitrogen of the air, and certain ones of the coal products, into ammunition. The fundamental reason for the support which the Imperial Government gave to the coal products industry was that Germany should develop a supply of ammunition adequate for national defense and world conquest.

While developing home resources, the German industry bought benzol, carbolic acid and other crude coal products from England, thus absorbing England's commercial and military strength. Meanwhile we were more backward than England, for we were so quick to grasp the red hot opportunity presented by German dyes and pharmaceuticals at low prices that we did not even take the trouble to produce enough crude coal products to export.

Ammunition cannot be manufactured in sufficient quantity during the interchange of diplomatic notes prior to war; it must be manufactured and stored long in advance of hostilities. One main national defense is that great coal products chemical plants be established and operated steadily at commercial profit during peace, so that they will be instantly available to produce unlimited ammunition during war.

In 1915 we built many ammunition plants in the United States, every one on an artificial basis; few of them can make a profit at peace prices. Unless the United States establishes a complete and profitable national coal products industry on a basis to keep abreast with all scientific progress, our program of "national preparedness" will descend to the plane of comic opera.

Nitric Acid from the Air

is one step in such scientific progress. Our supply of nitric acid comes now from nitrate of soda imported from Chile. After the war, if the importations are not obstructed, we will receive nitrates and nitrogenous products manufactured in Norway and Germany by fixation of atmospheric nitrogen. Part of these products will be for fertilizer, part for explosives.

Exhaustion of the nitrate of soda mines in Chile will ultimately make the United States wholly dependent upon this European supply, unless we manufacture our own nitrates and nitric acid from the air.

The potash situation is a parallel condition. With German potash cut off, we have no potash. Various American sources will be brought into operation, but several years must elapse before we produce all the potash we consume.

Fixation of atmospheric nitrogen as even thopgh the Federal government give the manufacture its strongest support.

Nitric acid is the effective end of every explosive and is the first chemical reagent used in the manufacture of aniline, and hence of indigo and others of the most important coal products and dyes. Without nitric acid, our entire navy, army and coast defense becomes helpless the instant the stock of ammunition is exhausted.

Our entire investment in national preparedness will be wasted money, if it does not include the manufacture of nitric acid from the air on a scale to render us absolutely independent of foreign nitrates.

Tariff.

A reasonable tariff, if formulated upon rational lines, will be of much value in supporting our coal products manufacture. Such a tariff would divide these products into three classes, according to their degree of advancement in manufacture, and would levy duties proportionate to this degree. The classes would be—First, crude products; second, intermediates; third, dyes, pharmaceuticals and highly refined products. The duties should be:—On crudes, 10 per cent. ad valorem; intermediates, 20 per cent. ad valorem, and dyes, 30 per cent. ad valorem.

If a specific duty be included it should be at the rate of 3¾ cents per pound on the intermediate class and 7½ cents per pound upon dyes and pharmaceuticals. There should be no specific duty on crude products.

The free list should include coal tar, coal-tar pitch, creosote oil and mineral acids. Natural indigo and other natural dyes of vegetable or animal origin should be placed with synthetic dyes, in class three.

Class 1—crude products—should comprise a small list. It should be described as:—All crude products of coal produced through destructive distillation of coal, or otherwise, and not refined by more than one distillation, nor refined by any process other than distillation, nor refined nor produced by synthesis; such products being crude light oils, benzol, toluol, xylol, creosol and naphthalin, crude tar acids containing less than 80 per cent. pure tar acids, and all other products from coal not otherwise specially provided for, and not medicinal and not colors or dyes, the duty to be 10 per cent. ad valorem.

The second, or intermediate class, should include all products manufactured from those of the crude products class, and all so-called intermediates, not colors nor dyes nor pharmaceuticals nor medicinal products, such products being phenol, cresol, aniline, anthracene, etc.—duty 20 per cent. ad valorem and 5 cents per pound specific.

The third class should include all colors or dyes derived from coal, including indigo, natural and synthetic and alizarine—dry or suspended in water—and dyes obtained from indigo or alizarine, and all products derived from coal, which are used for pharmaceutical or medicinal purposes, or other purposes—duty 30 per cent. ad valorem and 7½ cents per pound specific.

Natural indigo and all dyes, pharmaceuticals and medicines, and all other products derived from natural sources of vegetable or animal origin, and which are used interchangeably with similar products derived from coal, should be included in class three.

Anti-Dumping Clause.

There should be an anti-dumping clause to prevent unfair competition instituted for the purpose of destroying American industry. An dumping clause must be drafted with utmost care and its working tactfully handled. If it be too drastic, or if handled without good judgment, it will become worthless, or worse, because foreign countries, in retaliation, will inflict the anti-dumping penalty upon any American manufacturers who may sell their goods in those countries at lower prices than in the United States. We cannot afford to take any chances with American industry now when our export trade in manufactures is becoming better established than ever before in our commercial history.

Compulsory Working of Patents.

in theory looks attractive. In practice there has been nothing in the history of the coal products industry which could have been changed or improved by it to the slightest degree. Compulsory working of patents has been tried in England, France and Russia as recently as 1907, and proven a total failure in those countries.

As stated by the German authority, Prof. Otto N. Witt, "The success of a coal-tar dye factory is no longer dependent upon the careful guarding of factory secrets as in the past, but upon a systematically arranged plant and the proper distribution therein of the work to be performed, and above all, upon skilful commercial management, both within and without the factory."

Lack of Technical Common School Education

is a further disadvantage from which we suffer. Our system of early nineteenth century education includes no technical or trade schools, by which in Germany the entire population is perfected in twentieth century methods for earning their living in twentieth century industries. In consequence, American labor does not give effective attention to its job, and it is extremely difficult to secure labor in the United States which will give competent attention to the delicate chemical manufacturing operations of the coal products industry.

In Summary.

The essentials for creation in the United States of a complete industry in the manufacture of products derived from coal are:—Co-operation of the American acid and alkali manufacturers with the coal products industry; co-operation of the American consumers with American producers through long-term contracts to assure us the American market; establishment of the industry on a peace scale big enough to make it a fundamental factor in national defense; establishment on a profitable commercial basis of the manufacture of nitric acid, by fixation of atmospheric nitrogen; nationalization, or rather internationalization, of the industry to insure a balanced world market for all by-products; development of a system of twentieth century common school and technical school education, and finally maintenance of a rational tariff.

That a larger coal products industry will be established in the United States is certain. The degree to which it attains perfection will be in proportion to the extent with which these requirements for its profitable operation are provided.

Syracuse, N. Y., December 18, 1915.

H. W. Jordan.

Prepared for meeting of the American Institute of Chemical Engineers, Baltimore, January 12-15, 1916.

New Problems in Fuel Oil Consumption

H. T. Bayard, of Cosden & Co., Tulsa, Okla., and Chicago, has given the following particulars of the changed conditions in the fuel oil trade to a representative of the Reporter:—

Consumers of fuel oil are facing a situation that is causing them to give the subject of heavy oils greater consideration than ever before. This is due to the scarcity of crude and the higher prices being asked for petroleum products, which in some cases have increased 200 per cent.

The question invariably asked by buyers of fuel oil is, "Can you recommend an oil that will not cost as much as we are now paying for a 32-34 distillate, and which will give us the same results?"

When an oil of 23 to 27 degrees Beaume is recommended, they immediately reply that they tried it once and only trouble resulted. This trouble was occasioned by the high cold test of the oil, which caused it to congeal at a temperature of from 35 to 40 degrees Fahrenheit. In many cases the oil became so thick in cold weather that it caused furnaces to be closed down, thus delaying work that was being put through on schedule. This trouble should not be laid to the oil, but rather on the design of the fuel oil system, which is a mechanical fault.

When one considers that a number of up-to-date manufacturing companies purchase their fuel oil on a heat unit basis, viz., so many B. T. U. for one cent, it can be clearly understood why they use the heavier oils.

The heavier oil has greater heating value per gallon. This is readily demonstrated by the use of the following formula for determining the heating value per pound of petroleum. This formula was first published by Sherman and Kropf before the American Chemical Society, October, 1908:—

"B. T. U. per pound=18,650 plus 40 (Be—10)."

Checking back against actual calorimeter tests this formula proves to be correct for all practical purposes.

In one particular case where the oil was purchased on the heat unit basis by a large municipality, the B. T. U. determined by the use of this formula was within seven B. T. U. per pound of the result obtained by testing the same oil in an Atwater-Mahler bomb calorimeter. The gravity of the oil was 23.5 Beaume, and showed 19,190 B. T. U. per pound, well above the guarantee of the refiner. Moreover, this formula explodes the statements made by a number of refiners that the oils of the mid-continent fields do not contain the heating value of the Eastern oils, for a careful investigation will convince one that it is the gravity of petroleum that determines the heating value.

Prior to the past four years, fuel oils were spoken of as containing so many heat units per pound. A marketer anxious to sell a 32-34 Beaume oil would invariably state that this oil contained 19,600 heat units per pound. Because of the fact that the 24 Beaume oil contained but 19,210 heat units per pound, the buyer was led to believe that the lighter gravity oil was the better if he did not take into consideration the fact that he was buying the oil by the gallon, not by the pound.

Had the buyer placed the two oils in the hands of a chemist for a test, he would have learned that the heavier oil really contained 5,000 more heat units per gallon than the lighter oil. This is because the 24 Beaume oil weighs more per gallon. The weight of the heavier oil per gallon multiplied by its heat value per pound gives the foregoing result.

The difference in the prices of a 24 and a 32 Beaume gravity oil (which usually equals one and one-half cents per gallon) has enabled consumers of heavy oils to reduce their fuel oil bills at least one-third. In fact, the increasing use of the heavier oil for fuel purposes is an acknowledgment that for time, cleanliness and flexability, this oil is the ideal fuel.

The new processes now being installed for the refining of petroleum enable refiners to rerun the lighter fuel oils and obtain a greater percentage of gasoline and naphtha. These new refining processes will eventually cause a scarcity of the lighter fuel oils and will force consumers to equip their plants for the use of the heavier fuel oils.

The changing of a fuel oil equipment is a simple matter, and does not necessarily require (as many have supposed) the discarding of the burners used for the burning of the lighter fuel oils.

The proper method of burning the heavier fuel oil is to heat the oil in the storage tank; circulate it through the piping, branching off at the proper points for connections to the furnaces, then return the surplus oil to the storage tank.

As the specific heat of oil is about one-half that of water, it will require only a small amount of live steam to raise the temperature of the oil in the storage tank to the desired point. In many plants the surplus exhaust steam is piped to the tank coils, thereby making a considerable saving. This is especially true in steam forge shops.

One of the advantages of circulating hot oil is that any sediment which may be present, and which is separate by heating, is returned to the tank. This prevents the sediment being carried to the burners and clogging them. Also, it is good practice to carry the temperature of the oil about fifty degrees Fahrenheit below its flash point, thus avoiding the formation of gas in the pipes, which would cause the fires to burn unsteadily. It is better to deliver the oil to the burner at a pressure of not less than twenty pounds. In open hearth practice the pressure is in many cases maintained at sixty pounds per square inch. The higher pressure has a tendency to cause the oil previously heated to near its flash point to change to gas after it leaves the tip of the burner. This prevents the oil from being carried across the furnace, in which case it would adhere to the hot walls on the opposite side, forming a coke.

Numerous instances can be cited of refiners having produced heavy oils that burned without the slightest difficulty, when the proper equipment was provided. They accomplished this by sending a representative to demonstrate in a practical manner that the heavier oils were suitable for all purposes where fuel oil is used.

The method formerly employed by a number of users of heavy fuel oils was to pass the oil through coils exposed to a high temperature. This method was abandoned after it was found that when the oil was heated beyond its flash point it deposited its fixed carbon, or coke, on the sides of the heater. This accumulation of carbon, or coke, soon filled the coils and prevented the oil from flowing.

Of late, the practice has been to equip nearly all the new fuel oil systems for high pressure oil and low pressure air. The use of steam for vaporization is seldom used in up-to-date plants. Engineers have found that steam is a useless expense because in any event air has to be supplied for combustion. It was found that the steam entered the furnace and passed on through without contributing anything toward increasing the temperature. Rather it absorbs a certain amount of heat. Therefore, it has been decided that it is better to use air alone which has previously been heated, in many cases to 300 degrees Fahrenheit.

The use of steam for vaporization is also being discontinued by large brick companies because it has been found that the steam condensed on the green bricks just after starting to burn the kiln. This moisture spotted the bricks, and caused a number to be rejected as seconds, to the amount of millions of bricks each year.

Where oil fuel is used for the heat treatment of steel, it is best to use air for vaporization, as it reduces the scale loss to a minimum.

It might be suggested to manufacturers that, when contracting for future requirements, they give careful consideration to the possibility of their using a heavier oil. The probable source of supply is also worthy of thought. Many might be surprised to learn that the bulk of the oils now being marketed throughout the Middle West and Eastern markets is being supplied from the mid-continent fields.

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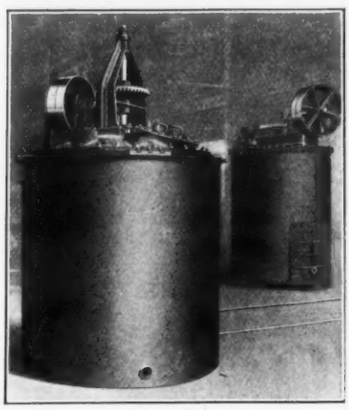

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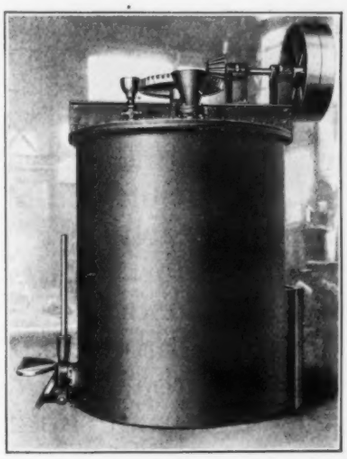

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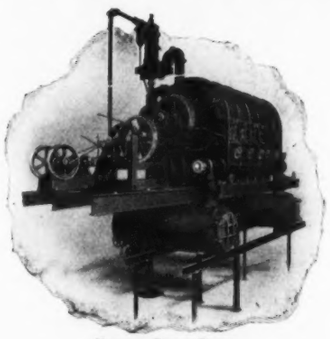

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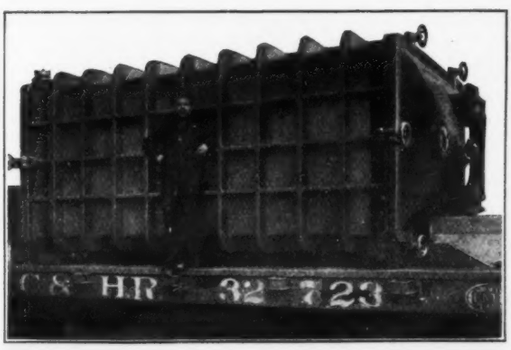

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